Annual Tips Issue: 101 Power Tips for DOS and Windows

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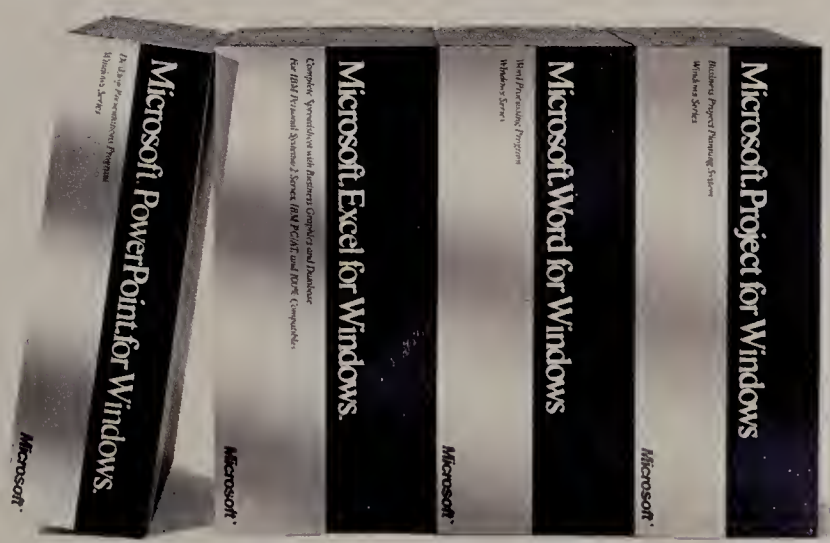

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"Day and Night," by M.C. Escher. Woodblock printed from two blocks, 1938. *© 1990 M.C. Escher Heirs/Cordon Art—Baarn—Holland.*

PC WORLD

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Cover photograph by John Greenleigh

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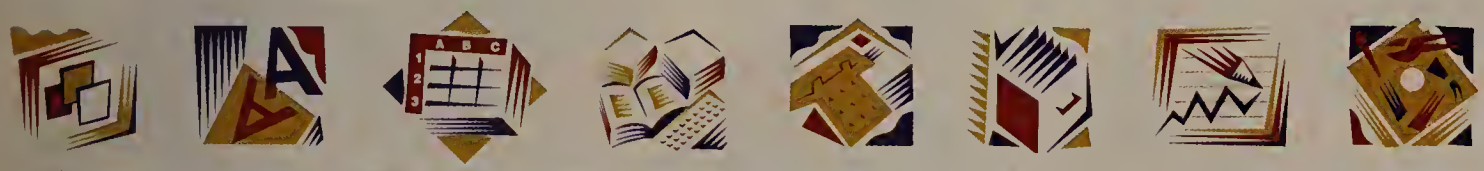

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FREE INFORMATION!

With *PC World*'s handy Reader Service Card, you can request detailed information about products you see advertised or reviewed in this magazine.

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HOW TO CONTACT PC WORLD
Unless otherwise indicated below, please direct all correspondence and inquiries as follows:
Mail: PC World Editorial
501 Second St. #600
San Francisco, CA 94107
CompuServe: 74055,412
MCI Mail: PC World Editorial
Phone: 415/243-0500
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PC World welcomes your comments and opinions. Address editorial correspondence to *Letters to the Editor.* Letters intended for publication should not exceed one double-spaced page. Be sure to include your name, city, and state. We reserve the right to edit all letters published.

Help With Your PC Hardware or Software
If you have a problem, *PC World* may have the answer. Send questions about PC products and procedures to *The Help Screen*, network-related questions to *Network Q&A*, and consumer-related questions and complaints to Roberta Furger, *Consumer Watch.*

Reader Submissions
PC World encourages readers to share technical solutions. We pay $25 for each *Power Tip* published in the magazine, $50 for *User Group Tips*, and $25 to $200 for *Star-Dot-Star* items. Keep submissions brief (*Power Tips* and *User Group Tips* to 100 words or less). We cannot acknowledge unpublished submissions; accepted submissions will be acknowledged by payment.

New Product Information
Send hardware press releases to Cathy Smith, Editorial Assistant, or call her at 415/978-3179. Send software product announcements to Susan Lusty, Assistant Editor, or call her at 415/978-3321.

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For a free brochure or the name of your nearest Toshiba dealer, call 1-800-457-7777.

Sales results based on worldwide installed base of lap tops, per 1989 Dataquest Inc. study Customer satisfaction results based on PC Magazine, 9/25/90 issue

MORE PORTABLES THAN ANYONE ELSE.

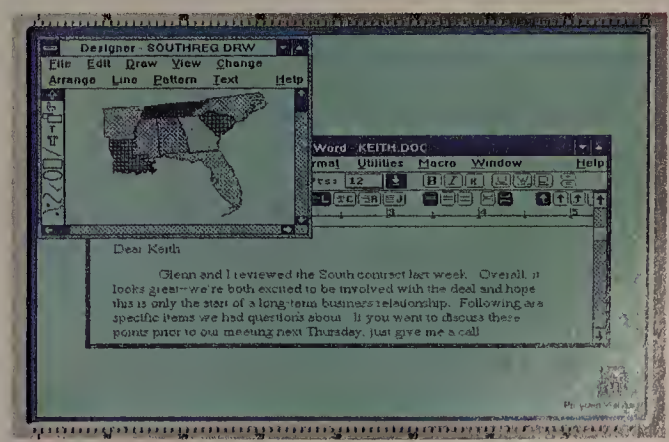
Next, you'll find the keyboard to be immediately familiar, since it's what you're already used to. All of the key spacing and sizes are standard.

You'll also discover plenty of processing power packed into the 286-based T1200XE. And the 20MB hard drive means you can keep all your programs and files right where you need them. With you.

Plus, you'll undoubtedly appreciate the T1200XE's other humane features like a slim line battery pack and AutoResume,™ which lets you pick up exactly where you left off. No grand reopening of the system, program and file every time you want to start work again.

The only thing you'll notice we've skimped on is size and weight. After all, what good is a portable if you can't take it with you?

With notebooks like the T1200XE it should come as no surprise that Toshiba sells more portable PCs than any other company in the world. After all, you're not the only one who recognizes a good thing when they see it.



Toshiba designed the large, easy-to-read display with real, live humans in mind. So now you can work without a lot of eyestrain, neckstrain or backstrain.

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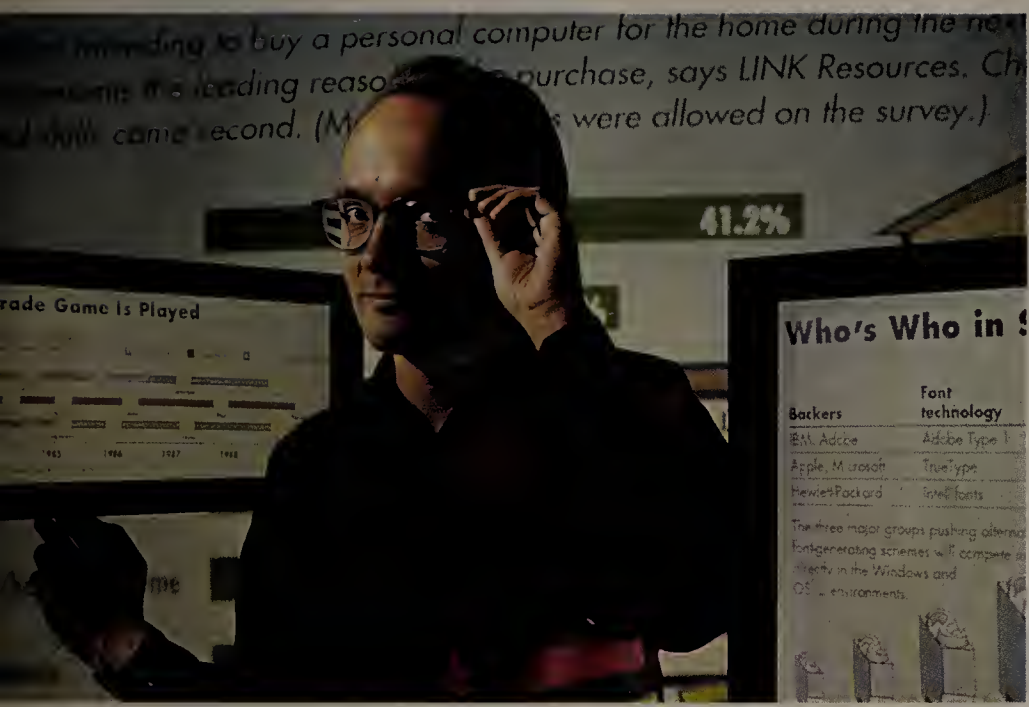


Design associate Jeff Glines in typical graphic attire.

ROBERT CARDIN

Meet Mr. Infographics

There's nothing quite like an "aha!" experience, when something you feel you *should* understand suddenly turns crystal clear. If you've ever gotten that flash from the pages of *PC World*, chances are that Design Associate Jeff Glines had something to do with it.

Around here, the flamboyant Mr. Glines is affectionately known as Mr. Infographics. His mission: to design tables, flowcharts, and technical illustrations that convey key information in an instant.

Jeff's latest achievement was directing the design of *PC World*'s new "Know Your Options" page, a monthly decision tree that leads you to the best hardware or software solutions for specific needs. "I found it challenging to take a jumble of questions and answers and turn it into a path," says Jeff, "especially since the format must stay consistent, while the content will change from month to month." The result, found in "Tax Relief for the Rest of Us" in this issue, speaks for itself.

How does Mr. Infographics bridge the gulf between art and technology? Well, it helps to have a creative background and a long association with PCs. A self-described hack musician, Jeff bought an original 64K IBM PC in 1983. "I was disappointed," he says, "to discover I couldn't use it to create pictures or music. So I decided to start a word processing service."

With the idea of gaining more technical knowledge, Jeff began freelancing for *PC World* in 1983, and was quickly promoted to full-time special projects associate. He was a tireless Renaissance man, setting up industry events, producing videos, managing marketing projects, even writing *dBASE* applications. In 1988, Jeff moved into the heart of *PC World*'s art department.

All this doesn't begin to describe the flair, generosity, and humor that Jeff brings to his job, from writing ingenious (and unprintable) fake captions, to sweating the details of electronic color separations, to helping the rest of the art department get more comfortable with PCs. According to Jeff, "people shouldn't ignore the possibilities for fun and exploration that computers hold. Set aside the time to play, and you'll become more relaxed, intuitive, and productive with your machine."

Jeff's attitude furthers *PC World*'s main goal: to sift through fields of technical data and present you with nuggets of information vital to buying and using PCs.

As this month's cover attests, we're not the only ones concerned about graphics. IBM's new PS/2 XP 486 offers top speed and multi-gigabytes of storage, but the real story lies in three little letters: XGA. This graphics technology comes with every XP system, heralding at last the birth of a successor to VGA—one with two-and-a-half times the resolution and as many as 65,536 colors.

Those of you with smaller equipment budgets, take heart. The most valuable part of this issue won't cost you anything at all. A special 24-page section serves up 101 secret tips for 25 top environments and applications, from *Windows* to DOS to *WordPerfect* to *1-2-3*.

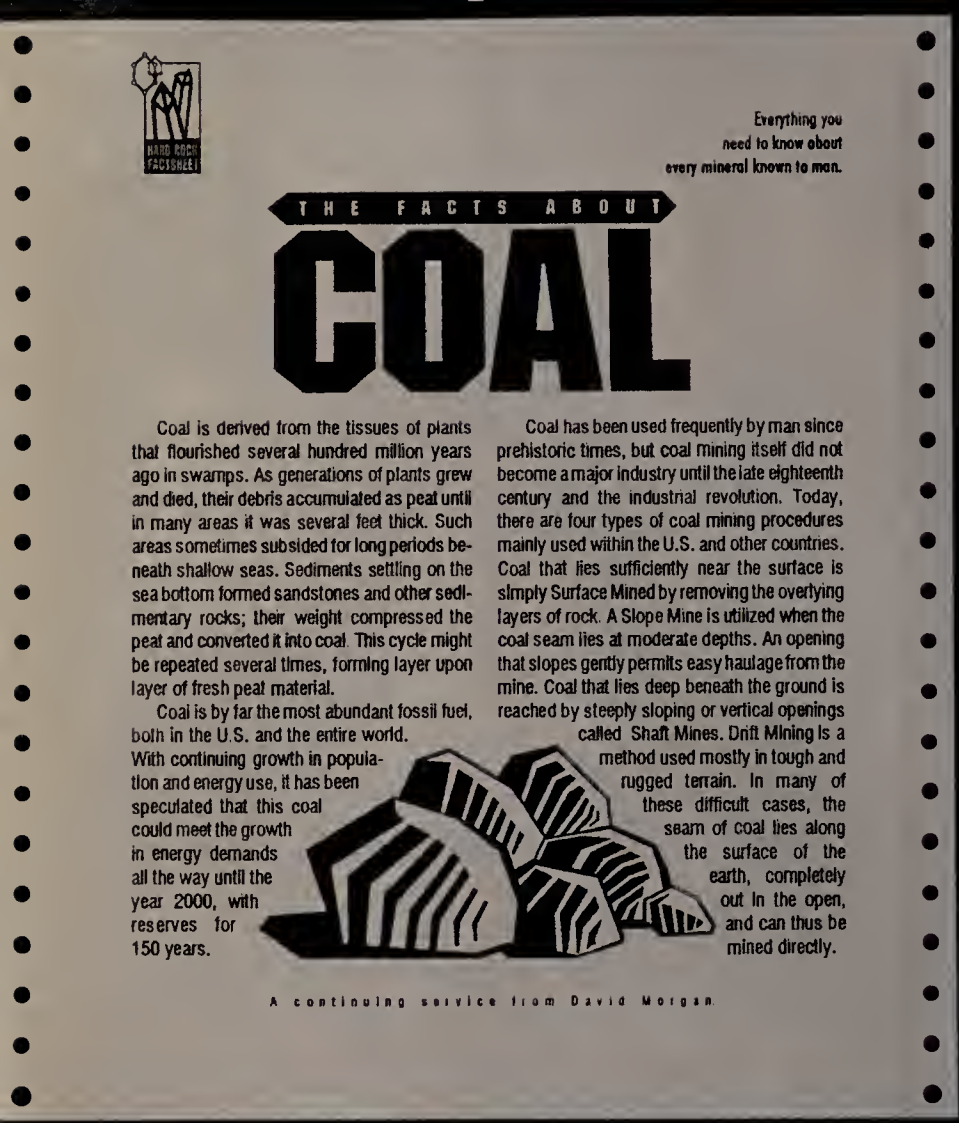
Our review of software font generators examines the best alternative to a PostScript printer. For that day in April we all dread, Associate Editor Roberta Furger and Assistant Editor Susan Lusty take a close look at personal tax software and whether it's right for you.

So follow Mr. Infographics' advice. Sit back and enjoy computing—and this issue.

Eric Knorr
Editor

Great price. Great looking.

Dot matrix printer $549.



HARD ROCK FACTSHEET

Everything you need to know about every mineral known to man.

THE FACTS ABOUT

COAL

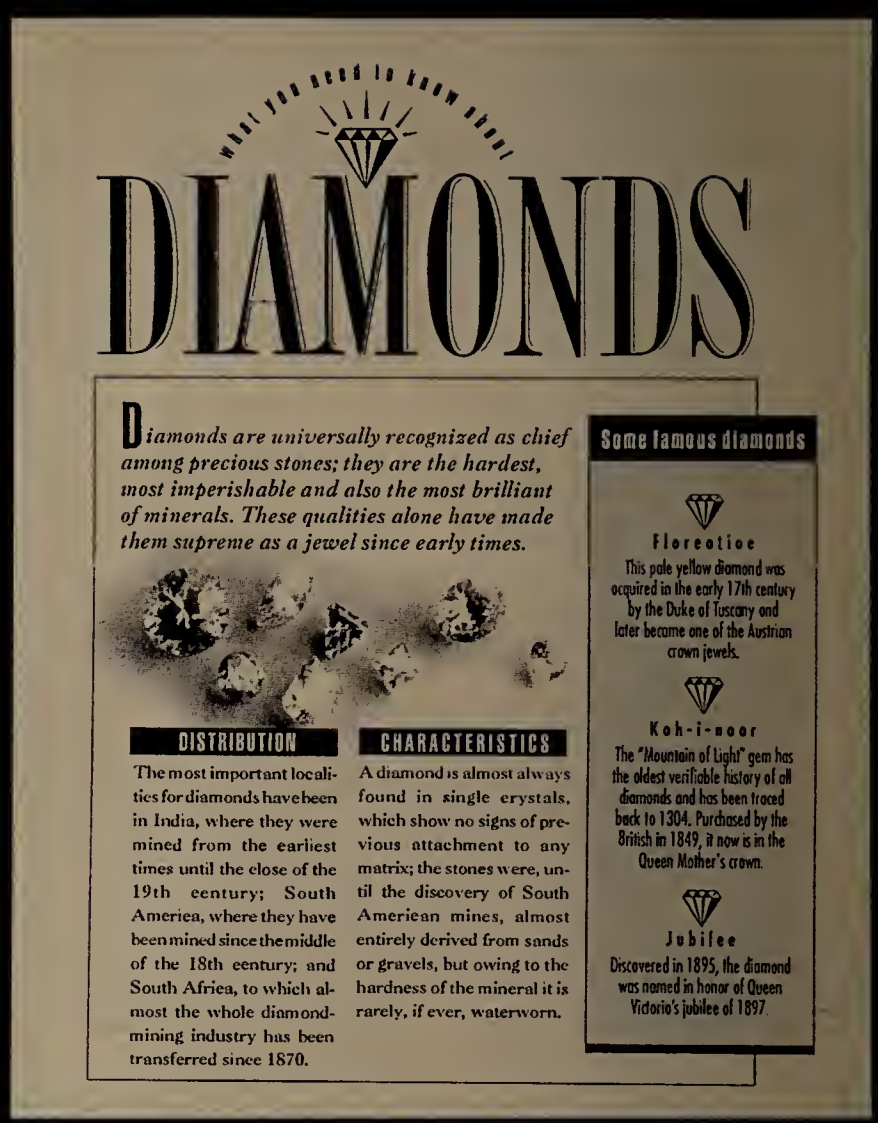
Coal is derived from the tissues of plants that flourished several hundred million years ago in swamps. As generations of plants grew and died, their debris accumulated as peat until in many areas it was several feet thick. Such areas sometimes subsided for long periods beneath shallow seas. Sediments settling on the sea bottom formed sandstones and other sedimentary rocks; their weight compressed the peat and converted it into coal. This cycle might be repeated several times, forming layer upon layer of fresh peat material.

Coal is by far the most abundant fossil fuel, both in the U.S. and the entire world. With continuing growth in population and energy use, it has been speculated that this coal could meet the growth in energy demands all the way until the year 2000, with reserves for 150 years.

Coal has been used frequently by man since prehistoric times, but coal mining itself did not become a major industry until the late eighteenth century and the industrial revolution. Today, there are four types of coal mining procedures mainly used within the U.S. and other countries. Coal that lies sufficiently near the surface is simply Surface Mined by removing the overlying layers of rock. A Slope Mine is utilized when the coal seam lies at moderate depths. An opening that slopes gently permits easy haulage from the mine. Coal that lies deep beneath the ground is reached by steeply sloping or vertical openings called Shaft Mines. Drift Mining is a method used mostly in tough and rugged terrain. In many of these difficult cases, the seam of coal lies along the surface of the earth, completely out in the open, and can thus be mined directly.

A continuing service from David Morgan

Laser printer $1495.*



WHAT YOU NEED TO KNOW ABOUT

DIAMONDS

Diamonds are universally recognized as chief among precious stones; they are the hardest, most imperishable and also the most brilliant of minerals. These qualities alone have made them supreme as a jewel since early times.

DISTRIBUTION

The most important localities for diamonds have been in India, where they were mined from the earliest times until the close of the 19th century; South America, where they have been mined since the middle of the 18th century; and South Africa, to which almost the whole diamond-mining industry has been transferred since 1870.

CHARACTERISTICS

A diamond is almost always found in single crystals, which show no signs of previous attachment to any matrix; the stones were, until the discovery of South American mines, almost entirely derived from sands or gravels, but owing to the hardness of the mineral it is rarely, if ever, waterworn.

Some famous diamonds

Florentine

This pale yellow diamond was acquired in the early 17th century by the Duke of Tuscany and later became one of the Austrian crown jewels.

Koh-i-noor

The "Mountain of Light" gem has the oldest verifiable history of all diamonds and has been traced back to 1304. Purchased by the British in 1849, it now is in the Queen Mother's crown.

Jubilee

Discovered in 1895, the diamond was named in honor of Queen Victoria's jubilee of 1897.

With the new HP DeskJet 500, every page will always look valuable.

You want to have that crisp, clean 300 dpi look of the laser printer. To say nothing of its quiet, reliable operation.

But you don't know there is an alternative to the loud dot matrix arena. Which means your documents don't look as good as they deserve to look.

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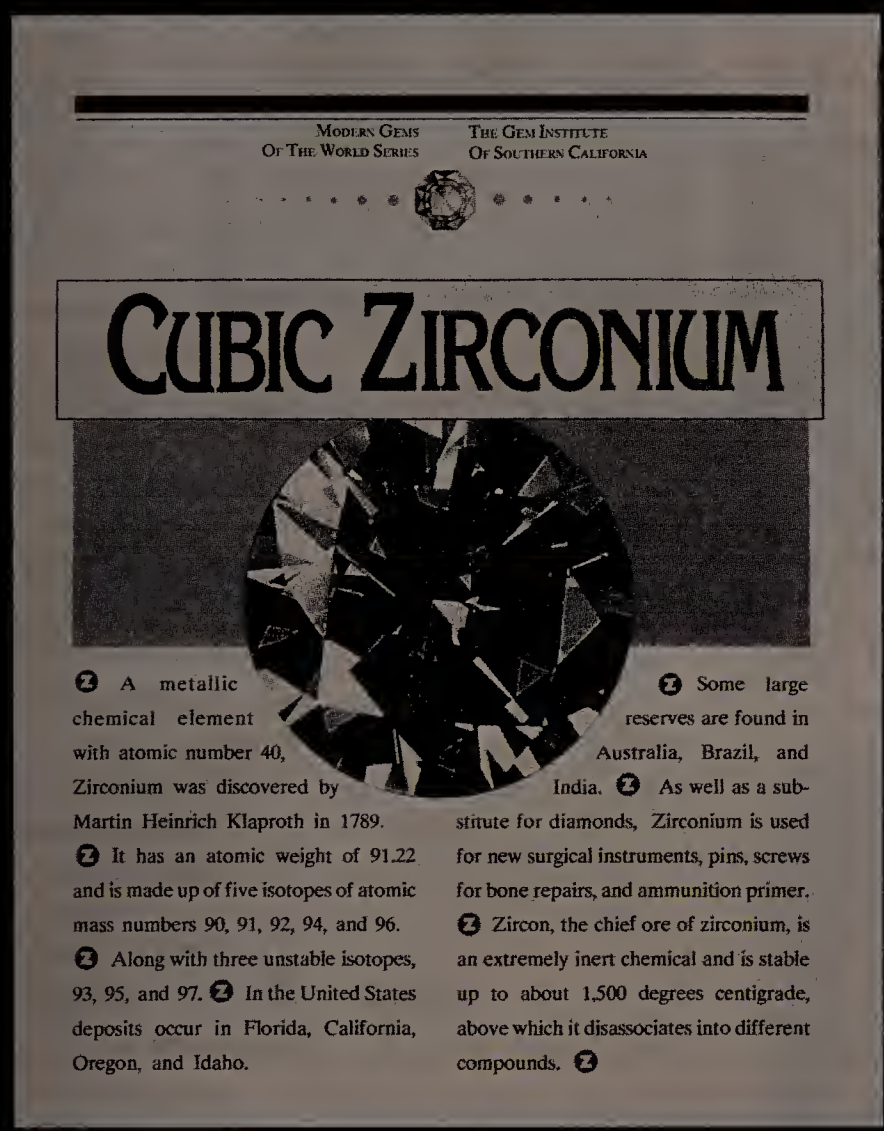
As you'd expect, the economical HP DeskJet 500

Suggested U.S. list price for HP LaserJet IIP and HP DeskJet 500. Documents created using Corel Draw and PageMaker. PageMaker is a U.S. registered trademark of Aldus Corporation.

Great looking price.

New HP DeskJet 500 printer $729.*



Modern Gems Of The World Series — The Gem Institute Of Southern California

CUBIC ZIRCONIUM

A metallic chemical element with atomic number 40, Zirconium was discovered by Martin Heinrich Klaproth in 1789. It has an atomic weight of 91.22 and is made up of five isotopes of atomic mass numbers 90, 91, 92, 94, and 96. Along with three unstable isotopes, 93, 95, and 97. In the United States deposits occur in Florida, California, Oregon, and Idaho. Some large reserves are found in Australia, Brazil, and India. As well as a substitute for diamonds, Zirconium is used for new surgical instruments, pins, screws for bone repairs, and ammunition primer. Zircon, the chief ore of zirconium, is an extremely inert chemical and is stable up to about 1,500 degrees centigrade, above which it disassociates into different compounds.

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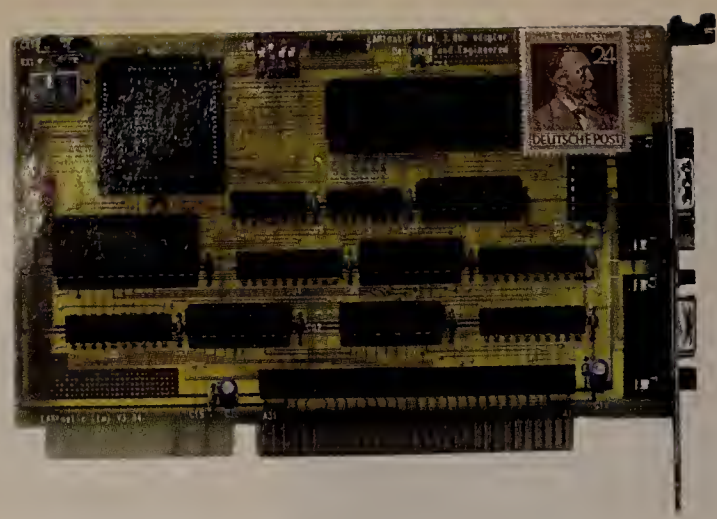

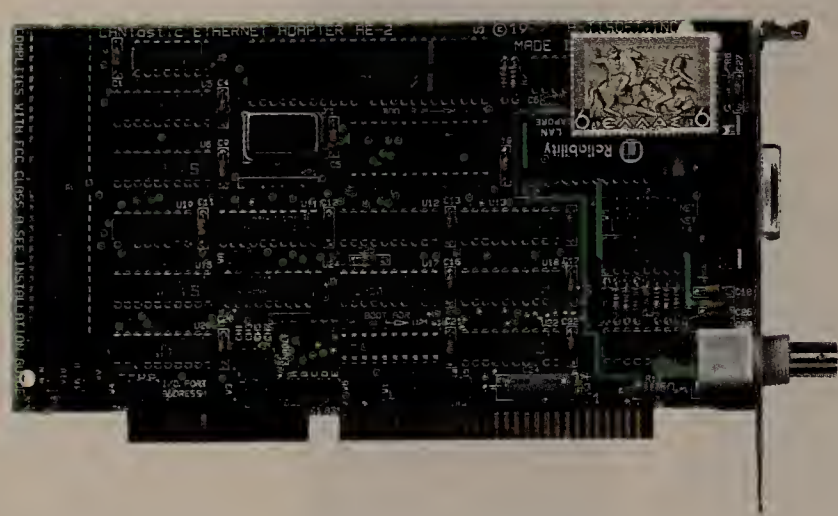

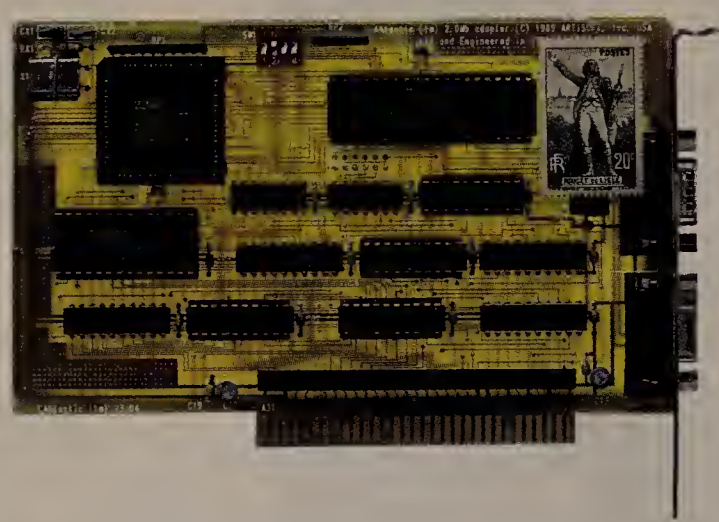

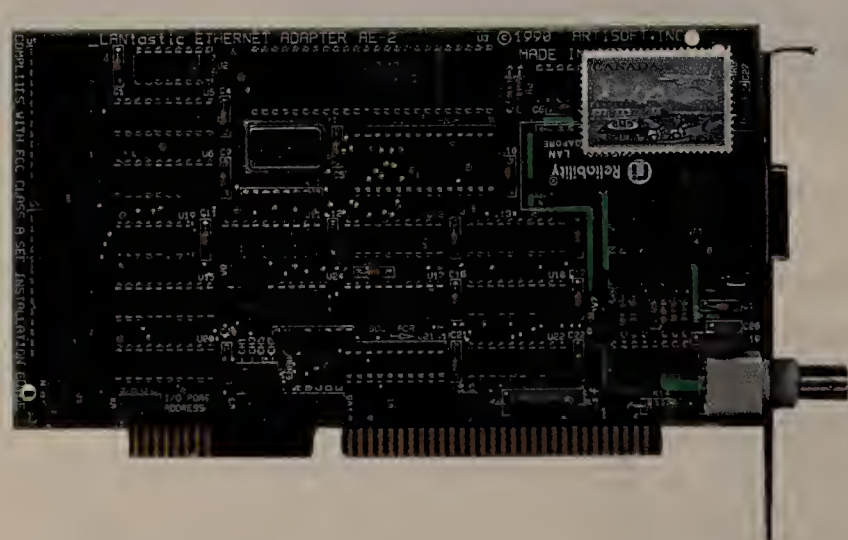

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Circle 18 on reader service card

ACTIVE COLOR ARRIVES

Sharp, Toshiba Target Laptops for Q1

At COMDEX Fall, both Sharp Electronics and Toshiba America showed aggressively priced laptops with crisp active-matrix color screens that are planned for March shipment. Sharp's Colorstar and Toshiba's T3200SXC include 10-inch, VGA-quality thin-film transistor displays. The former offers a choice of 256 colors from a palette of 262,144, while the latter displays 256 colors from 185,000. The Colorstar is powered by a 20-MHz 386, while the T3200SXC has a 386SX running at the same speed.

Although both companies have been demonstrating this high-resolution LCD technology for more than a year, the problem of manufacturing enough quality screens per batch to reach an affordable price has delayed their introduction. Toshiba product marketing director Tom Sherrard says that active-matrix color requires a $3000 to $4000 price premium, while users are unlikely to pay more than $10,000 for color laptops.

It will take until March for Toshiba to boost its screen yields sufficiently to offer the T3200SXC for $8999. Sharp national sales manager Rich Acerra says the Colorstar will sell for somewhere between $10,000 and $15,000 despite Sharp's efforts to bring it in under $10,000.

Both companies offer passive-matrix color laptops. The Sharp can display 8 colors, while the Toshiba offers 16 colors. Both are subject to color shift at some angles. With active-matrix technology, each pixel on a screen is driven independently by a transistor for greater color variation and contrast, and clear viewing from any angle. Sherrard claims that these flat panels offer better resolution than rounded CRTs, eliminating the last major advantage of desktops over portables. Current models are AC powered.

VGA IN THE FAST LANE

Products Boost Performance, Bolster Standard

Unintimidated by the recent debut of IBM's XGA high-end graphics offering, component makers have developed chip sets that dramatically increase the performance of VGA and breathe new life into the 640 by 480 or better standard.

Headland Technologies/Video Seven is showing its HT216 VGA chip set, which utilizes the high processor speed of the CPU bus to transfer video information rather than being limited by the 8-MHz Industry Standard Architecture I/O bus.

"VGA has always been the bottleneck in high-end PCs," says Jim Anderson, graphics director for Headland Technologies. "This eliminates that bottleneck." Because the chip set was optimized for *Windows 3.0*, users of that environment will see the greatest speed improvement, particularly when opening and closing windows and moving between applications, says Anderson.

Similarly, Chips and Technologies has announced the PUMA coprocessor chip set, designed to at least treble the speed of graphics-intensive applications. Unlike the HT216, which is intended for motherboards, PUMA will be built into a separate coprocessor card that will offload the compute-intensive functions of both VGA and 8514/A graphics from the central processor. Integrated Information Technologies takes a similar approach with its Integrated Graphics Array offering. With all these new chips, the result is improved performance, particularly when running *Windows* software.

Given the confusion likely to be caused by IBM's XGA announcement, the introductions come at a good time for VGA users, says Dataquest analyst Michel Castro. "When a new standard is introduced, users are afraid [that their] systems will be obsolete. This further solidifies VGA's position as a standard."

IIT says its products will appear in boards early in 1991. The other two suppliers will begin sampling their chip sets after the first of the year, with products expected around summer.

GORDON STUDER

LOTUS BUYS SAMNA

Ami Pro, 1-2-3 Become Potent Windows Combo

Lotus should be able to match Microsoft's *Excel* and *Word* graphical spreadsheet–word processor combo by midyear, thanks to its purchase of Samna Corporation, maker of *Ami* and *Ami Professional*. Lotus's marketing muscle should dramatically boost sales of the well-reviewed line, which currently accounts for about one-sixth of *Windows* word processor sales.

Samna products will be teamed with *Windows* versions of *1-2-3* and other Lotus programs expected by summer. As corporate demand for *Windows* soars, "the biggest priority we have now is to get out our *Windows* products," asserts Lotus chairman Jim Manzi.

Manzi observes that word processor sales in the U.S. are second only to those of spreadsheets, with a $700 million market growing 8 to 10 percent annually. "We're going to invest very aggressively in this business," he promises.

Under a definitive agreement scheduled at press time to be completed in December 1990, the Atlanta-based Samna becomes Lotus's word processing division.

"This gives Lotus really strong counterparts to Microsoft's *Excel* and *Word*," comments *Soft-letter* publisher Jeffrey Tarter. But the $65 million purchase price struck many as high for a company with $14 million in annual sales that has mostly been in the red during the two years since *Ami* debuted.

BORLAND DOES WINDOWS

Forms Processor, Turbo Pascal, SideKick II Unveiled

Borland International gave form and substance to its *Windows* and groupware strategies at COMDEX Fall by rolling out a forms/application generator and *Turbo Pascal*—both for *Windows*—as well as a network version of its *SideKick* utility. All are scheduled for first quarter 1991 release.

Expresso marries *Windows* to the *Paradox* data base engine, enabling in-house developers to generate both intelligent forms and more sophisticated applications that employ those forms as front ends. *Expresso*'s visual programming mechanism uses decision trees to aid in programming alternatives that depend on data input. Forms can link and control other *Windows* applications through Dynamic Data Exchange. With *Expresso* and *Turbo Pascal for Windows*, Borland hopes to become the leading provider of tools for the *Windows* environment.

The DOS-only *SideKick II* also utilizes the *Paradox* engine to drive network-based personnel and resource scheduling and data sharing, as well as to connect to other Borland applications that share the engine. *SideKick II* has a character-based graphical interface and prints out phone lists in all popular address book, index card, and time planner formats, says Borland vice president Rob Dickerson.

In addition to the familiar utilities—calculator, notepad, calendar, and phone book—*SideKick II* gains a full thesaurus and spelling checker and will run as a TSR in 40K of memory, taking advantage of expanded memory or disk space as available.

Borland expects to be at the forefront of mainstream *Windows* applications. But "we have to sell DOS products—because that is where our bread is buttered—then *Windows*, then Presentation Manager," remarks Dickerson.

MULTIMEDIA PCS ARRIVING

Windows, Cheap CD ROMs Set Stage

Reasonably priced multimedia PCs that marry high-quality images with audio will arrive by midyear, although business applications are more distant, say Microsoft and Tandy. One important piece of the picture is Microsoft's just-announced *Windows* multimedia architecture, which should become the first consistent, widely supported environment for PC multimedia applications.

"We're working with Microsoft to create an industry-standard, affordable delivery platform for multimedia," says one senior Tandy executive. IBM, Fujitsu, and other suppliers also will sign on to this standard, although none wants to show its cards yet. The minimal platform will be a *Windows*-capable 286 with 2MB of memory, a 30MB hard disk, VGA, audio and music interfaces, and CD ROM storage, says Rob Glaser, Microsoft's head of multimedia systems software.

In the long run, "the home market is really the Holy Grail," says another Microsoft executive, who reports that numerous developers are creating home reference, entertainment, and education packages. The first multimedia systems will sell for under $3000. More than 9 million U.S. PCs could be upgraded with kits costing less than $1000. If sold separately, CD ROM players should cost as little as $200 at retail by 1992. Additionally, IBM expects to market a low-cost rewritable optical drive in 1991.

Multimedia will dramatically recast business software, adding such things as voice-annotated spreadsheets and voice electronic mail, predicts Michael Braun, vice president for IBM's multimedia group. Braun emphasizes, however, that a suitable base of multimedia machines is needed first.

Meanwhile, Intel's second-generation Digital Video Interactive (DVI) chip set will add full-motion digital video to the desktop by year-end for $1000 (excluding storage and other peripherals). Broad use of this technology is years away, says Lotus multimedia head Rob Lippincott. "But if you like GUI, you'll love VUI [video user interface]."

TRY BEFORE YOU BUY

Lotus Tests New Slant on Shareware

Lotus Development is running a pilot program with ComputerLand Canada that lets customers of the 70-location chain try three of Lotus's most popular applications before buying. Called Lotus Choice, the shareware-like program puts fully functional copies of *1-2-3*, *Freelance*, and *Magellan* on the hard disks of new computers.

Users who want to participate can try each program as many as seven times, use the on-disk tutorials, and receive free telephone support from an 800 number. If they decide to buy, users call that same number to get a password that gives them unlimited use of the software. A shrink-wrapped copy with full documentation is then mailed to them.

The program, which began in October 1990, will run through January 1991 or until a statistically significant sample of 1500 users is achieved. "We think it's a great success, and the feedback from our customers is very positive," enthuses Ron Mitchell, director of marketing operations at ComputerLand Canada. "It's my guess that [Lotus] will want to do this on a much broader scale." Although it has invested heavily, Lotus is taking a wait-and-see approach, says manager of marketing programs Margo Boulanger.

But Lotus hopes the program will yield a greater acceptance of its products among small and medium-sized businesses, home businesses, and individual users, many of whom are taking advantage of the aggressive price promotions of other vendors—particularly in the case of *1-2-3*. Users don't get a price break through Lotus Choice, says Boulanger, but their software is professionally configured and installed by ComputerLand so that their computers are ready to go out of the box. Both companies make follow-up calls to sell the software and additional training and support programs. "This is the shareware of the nineties," concludes Mitchell.

GORDON STUDER

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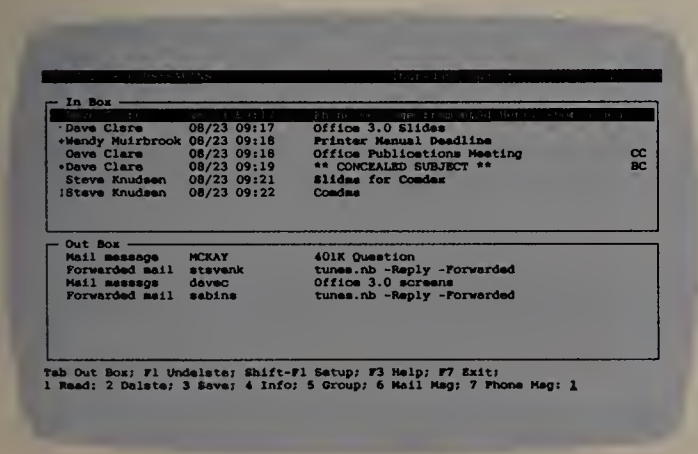
WordPerfect Office includes scheduler, calendar and powerful desktop utilities. These combined with our gateway services make it easier than ever to send messages around the world. For more information about WordPerfect Office 3.0 call us at 1 (800) 526-5161.



WordPerfect Office Mail

WordPerfect
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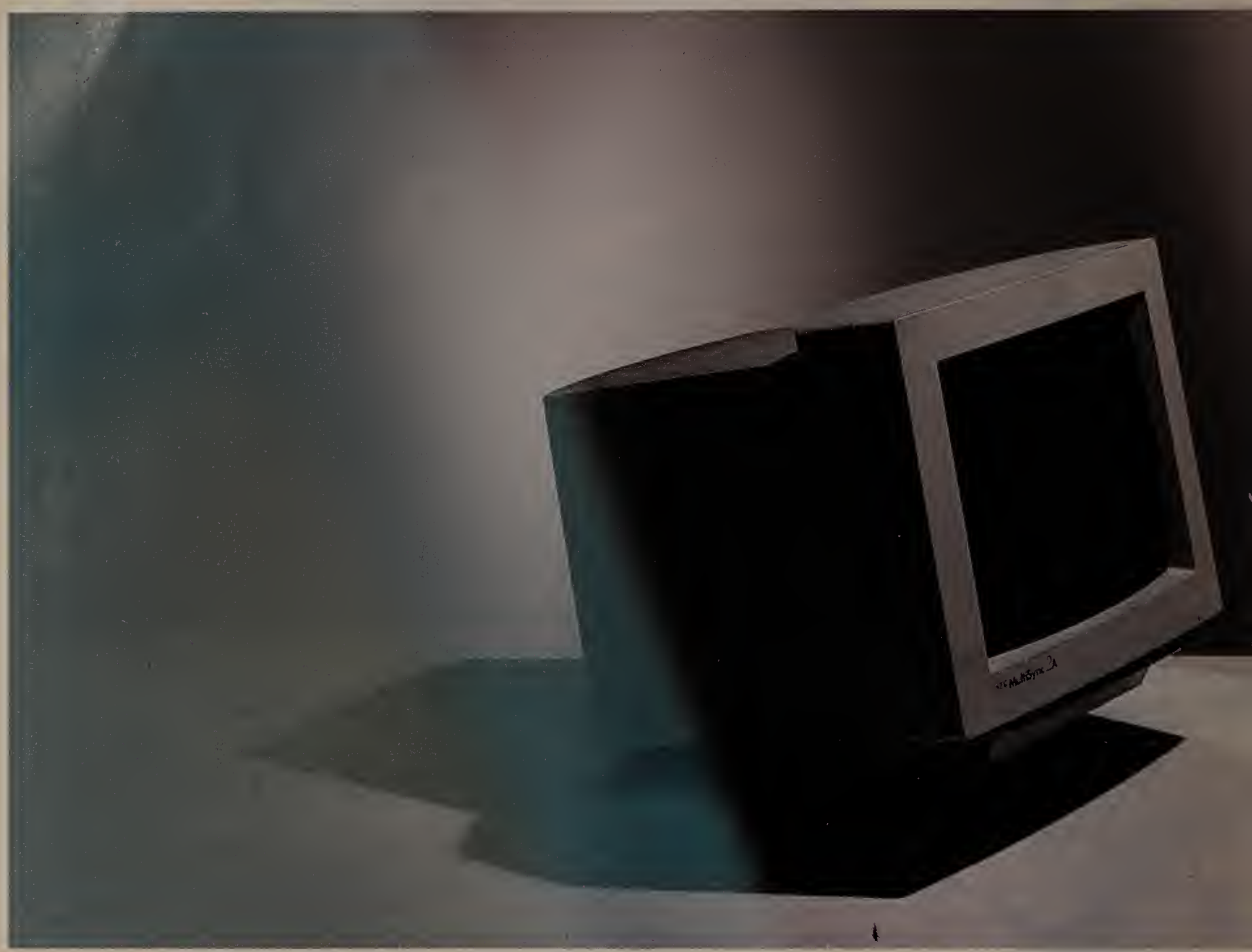
On the left, the best-selling VGA monitor. On



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C&C
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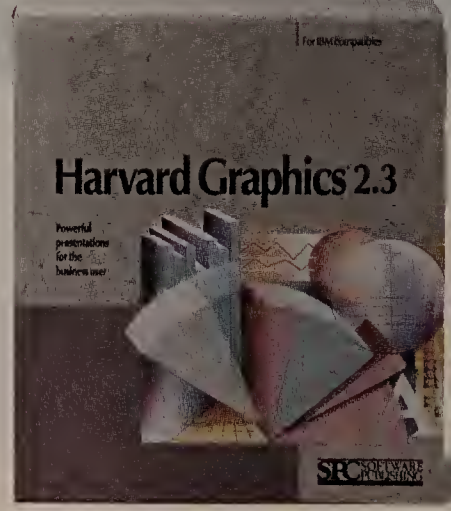

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The Display's the Thing

Wondering where you should spend your next upgrade dollars? Take a hint from IBM's new super systems.

Buzzwords come and go in the PC industry like rainstorms in the desert—first a deluge, then an eerie calm. That's why it pays not to get too worked up over the latest PC fashion trends. You never know if they're going to last.

One buzzword that looks increasingly like a survivor, however, is *multimedia.* And it's a buzzword worth getting excited about, too. Why? By adding sound, animation, and TV-quality video capabilities to the basic *Windows* computer, multimedia transforms a PC from a fan-cooled calculator into the ultimate information machine.

Imagine trying to justify a new equipment purchase to your boss. Instead of wooing him with spreadsheet tables, bar charts, and written text, you build a multimedia presentation that shows the new piece of equipment in action, relates testimonials from satisfied customers, and presents financial and technical details in response to a voice command. And that's only one multimedia scenario—in a few years, multimedia's destined to find its way into virtually every existing PC application and to spawn some new ones that we can't even envision yet.

There's only one problem with this rosy scenario—your PC probably isn't ready for it. Multimedia requires a fast system with a big-screen, high-resolution monitor; the ability to capture and play back sound; and adapters to attach a variety of peripherals like CD ROM drives, video recorders, and musical keyboards. By this measure, only Apple, with its Mac II line, has been in the business of creating multimedia-ready systems. That is, until now.

Multimedia: PC Power Redefined

Enter Big Blue. After years of lagging Compaq in performance and Apple in inspiration, IBM is finally fighting back with its new PS/2 XP product line (see "IBM's Visionary New XPs" in this issue). According to IBM's multimedia chief Bill Spaller, the XPs represent an early effort to design multimedia capabilities directly into the PS/2 line, rather than slap them into a plain-vanilla system via a plethora of add-in boards. Big Blue started with the single component that matters the most in a high-powered multimedia PC: the display.

The XP systems bring IBM up to snuff for the first time in quite a while.

Normally, we think of computing power in terms of the components that make for fast data processing: a 386 or 486 chip, a math coprocessor, a blazing hard disk. In this arena, the XP systems bring IBM up to snuff for the first time in quite a while. But in a multimedia system, what's outside the box is most important of all. The XP systems' new XGA graphics standard puts a premium on the rich colors and high resolution that a PC needs to convey lifelike, moving pictures. Without powerful graphics and a display that can let them shine, multimedia communications are likely to be as effective as talking under water.

Wanted: Big-Screen Computing

Ironically, IBM seems to have learned this lesson first with its PS/1 home computer, which comes with built-in VGA graphics and some basic audio talents. As a bare-bones multimedia system, it has all the features needed to take advantage of a graphical, interactive information service like Prodigy or to play any number of sound-capable games. But as a full-fledged multimedia PC, it simply lacks the graphics quality and scale that the new software ultimately requires.

Multimedia just doesn't mean sound, text, and pictures—it also means a style of computing that presents the user with many forms of communication simultaneously. That's of course a pretty natural condition for human beings—we're always processing several kinds of information at the same time. The problem with today's PC software is that it treats us like single-tasking ma-

(continues)

FRED STIMSON

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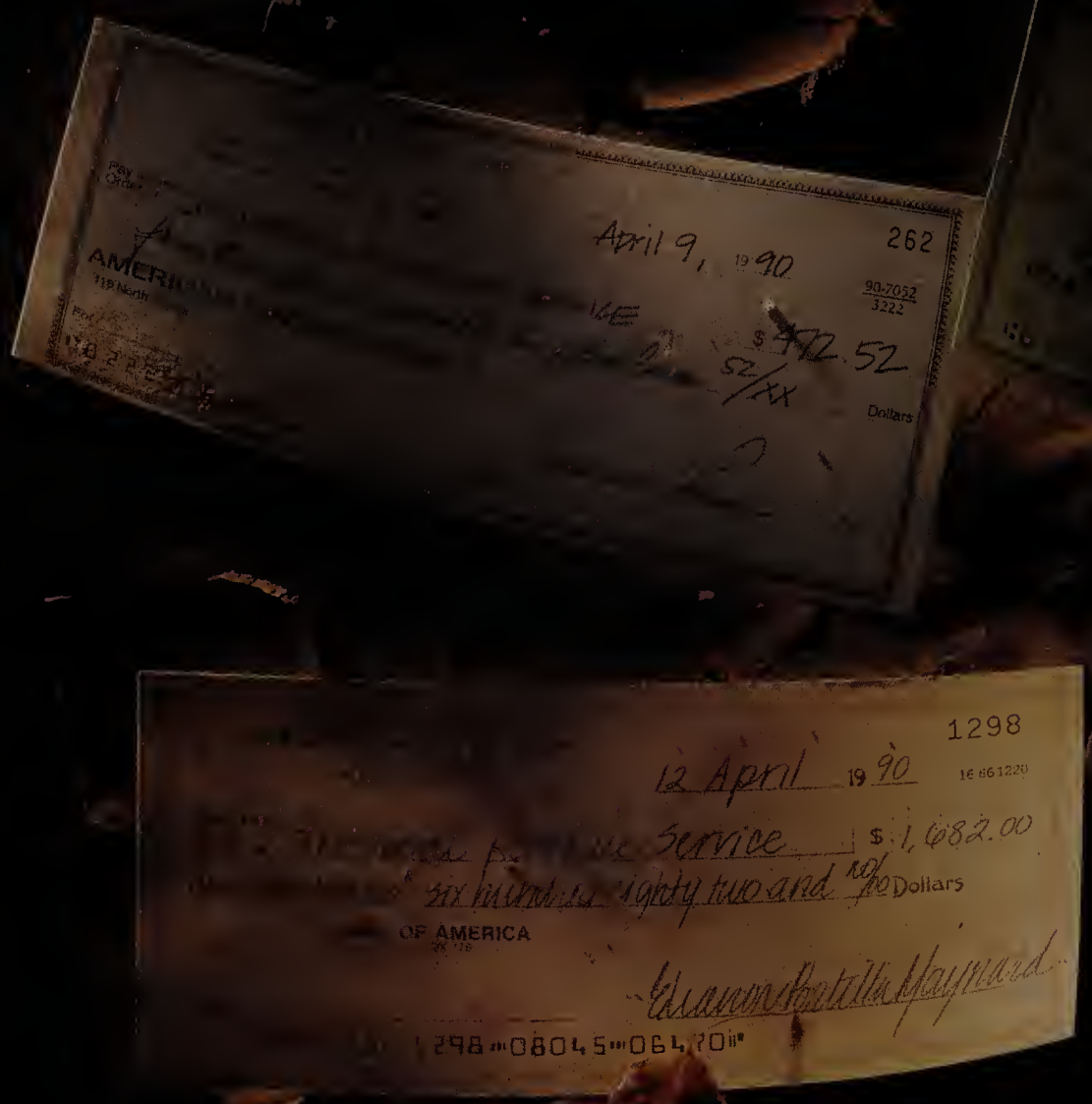

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chines capable of understanding information only by reading it, instead of as the multitasking organisms we are, designed to understand the world through all of our five senses. Similarly, VGA systems with 14-inch displays are like blinders on our vision of the PC world. Before we can really see the future of personal computing, we have to take those blinders off.

IBM's new XGA standard isn't just a good idea—it's a necessary building block for future multimedia systems. With a big-screen monitor, it's an ideal window onto a new era in personal computing. Make sure your buying plans for tomorrow include the big picture being unveiled today.

As always, I'm interested in your opinions on this or any other subject. Write to me at *PC World,* 501 Second St. #600, San Francisco, CA 94107; fax 415/442-1891; MCI Mail Richard Landry/301-3685.

POWER TIP NO. 159

Making It Easy to Save

Data stored in RAM is never safe. Get into the habit of saving your work to disk every few minutes. Most applications offer a single-keystroke save-and-continue feature, or you can use your applications' macro capabilities or a macro utility program to create a one-keystroke macro. You can use this last method to standardize your save command across all your applications. If you assign the same keystroke combination to the macros for all the programs you work with, you're more likely to save your data frequently.

Lincoln Spector
Assistant Editor

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S3600 Laptop

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Samsung Product Name	Computer Category	Micro-Processor	Clock Speed in MHz	Total RAM in MB	Data Storage: Hard Disk	5¼" Floppy	3½" Floppy	Additional Bays
S5200	Laptop PC	80286	8/12	1 up to 4	32MB	–	1.44MB	–
S3600	Laptop PC	80C286	8/12	1 up to 4	40MB	–	1.44MB	–
NoteMaster 386S/16	Notebook PC	80386SX	16	1 up to 5	20MB	–	1.44MB	–
S550	Desktop PC	80286	8/12	1	Optional	1.2MB	–	2
SD630	Desktop PC	80286	8/12	.64 up to 1	Optional	1.2MB	Optional	2
DeskMaster 286/12	Desktop PC	80286	6/12	1 up to 2	Optional	1.2MB	Optional	2
SD700	Desktop PC	80386SX	8/12	2 up to 8	Optional	1.2MB	Optional	2
DeskMaster 386S/16	Desktop PC	80386SX	8/16	2 up to 8	Optional	1.2MB	Optional	2
PowerMaster 386/25	Desktop PC	80386	8/25	4 up to 8	Optional	1.2MB	1.44MB	3
SystemMaster 386/33T	Tower PC System	80386	8/33	4 up to 24	Optional	1.2MB	1.44MB	5
SystemMaster 486/25TE	Tower PC System	80486	8/25	4 up to 32	Optional	1.2MB	1.44MB	5
386AE	Fileserver	80386	8/16	4 up to 8	Optional	1.2MB	Optional	4
386A3	Fileserver	80386	8/33	4 up to 8	Optional	1.2MB	Optional	4
PCterminal 286	LAN Workstation	80286	6/12	.64 up to 1	Optional	Optional	Optional	2
PCterminal 386SX	LAN Workstation	80386SX	8/16	2 up to 8	Optional	Optional	Optional	2

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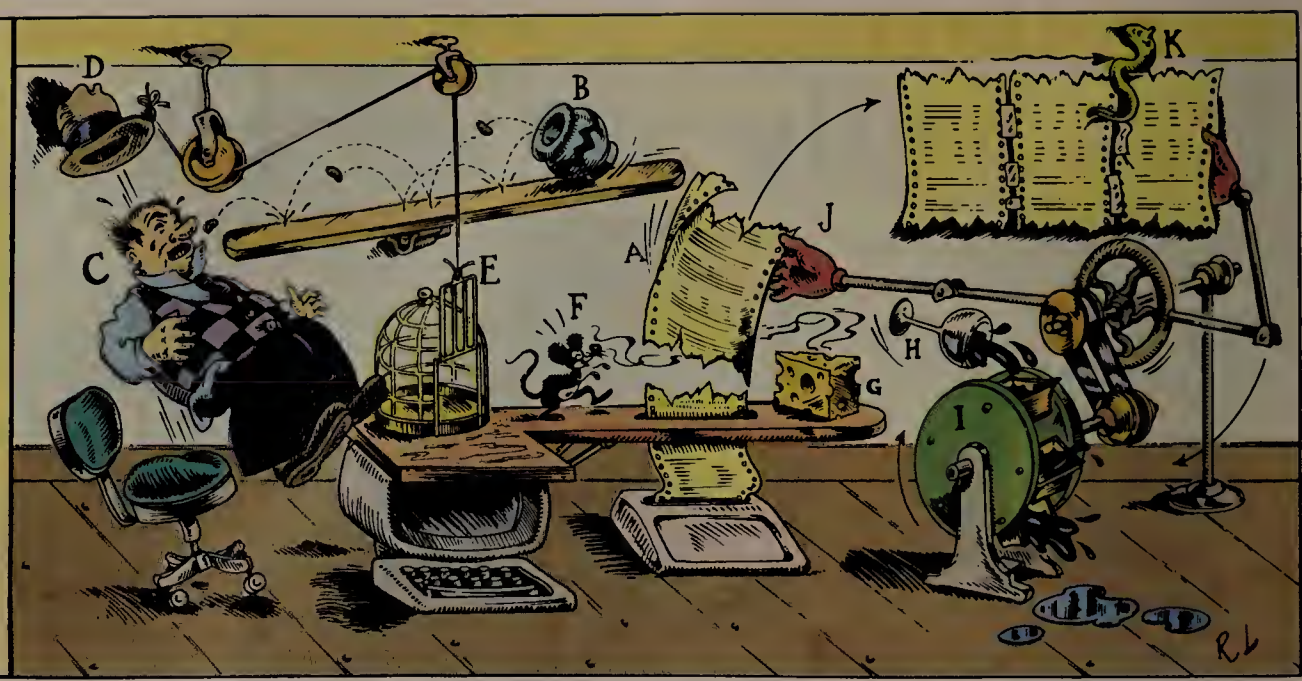
RISING SPREADSHEET (A) KNOCKS MEXICAN JUMPING BEANS (B) INTO MOUTH OF NEUROTIC MAN (C) WHO IS SO DISCOMBOBULATED THAT HIS HAIR STANDS ON END, DISLODGING HAT (D) WHICH OPENS CAGE (E) AND RELEASES EPICUREAN MOUSE (F).

MOUSE, INSPIRED BY SCENT OF PERFECTLY AGED CAMEMBERT CHEESE, GNAWS THROUGH SPREADSHEET, ONLY TO DISCOVER HE HAS BEEN FOOLED BY AROMA OF OVER-RIPE GORGONZOLA (G).

IN A FIT OF PIQUE HE SPILLS VINTAGE WINE (H) INTO WATER-WHEEL (I) WHICH TURNS PULLEY THAT CAUSES GLOVE (J) TO GRASP SPREADSHEET AND MOVE IT TO TAPING AREA.

SHEET IS TAPED SECURELY IN PLACE BY TRAINED ADHESIVE TAPE WORM (K).



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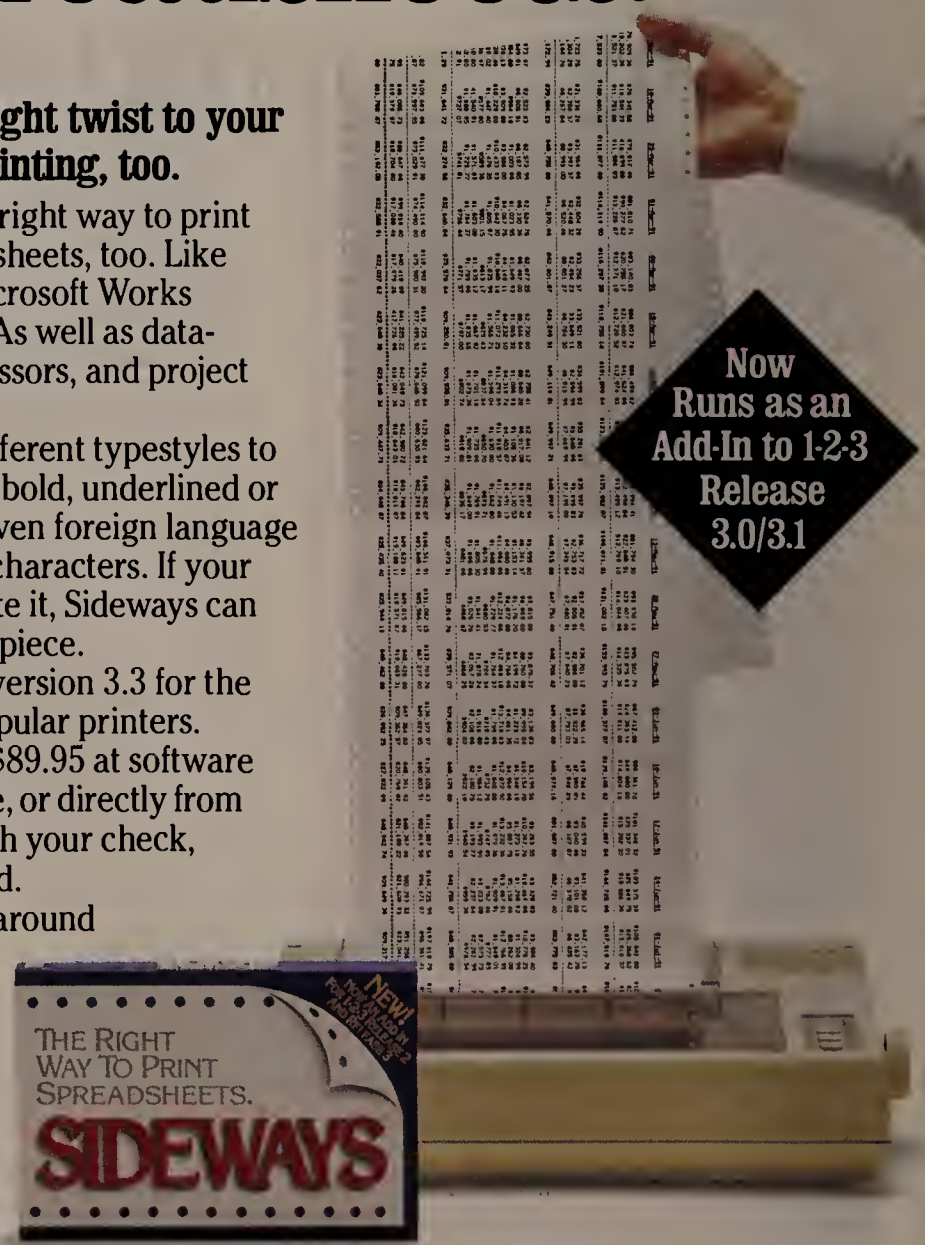

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LETTERS

Reactions and responses from the PC World community

GORDON STUDER

The Last Frontier

Richard Landry hit the mark again with his October column. I was particularly taken with his frontier analogy. The most successful companies of today were pioneers yesterday. They developed winning products out of hard work and innovation. And along the way they built on the ideas and efforts of others. But now that they're on top, some of these companies are ramrodding the courts into fencing off the open range of software development.

Randall W. Higgins
Tampa, Florida

I wonder what it will be like from now on for the small developer. I suspect that the men and women who improve and innovate without a team of lawyers at their back will continue their efforts. As long as their activities remain obscure and unprofitable, they'll probably be left alone. But when their efforts become successful, don't be surprised to see the fat cats attempt to snatch away the fruits of their labors.

Bill Crane
Waseca, Minnesota

It's good to see that at least some of the market leaders can stay out of the courtrooms. I expect software companies to provide good service and a fair deal, not fancy legal maneuvers.

James Kostnan
Crescent City, California

World Class Reader

Every October, I look forward to your World Class Awards. I enjoy comparing my choices with the other readers'. The contest has grown up with the products —I can remember when *1-2-3* was the winner in the business graphics category! This year, I particularly liked the service and support supplement—especially the handy comparison of the policies of top mail-order firms.

Morris Yardley
New York, New York

Thanks for the Swap

Many thanks for October's *Step-by-Step Guide* in *The Help Screen.* I have an odd PC with one parallel port that works just fine with all my printers except my Epson LQ-800. So I bought an add-on LPT-2, but I couldn't switch ports until you showed me how to create the SWAPLPTS.COM utility. At first I had a problem creating it, but a quick response from one of your staff members helped me find an error I'd introduced and get the utility to work.

Joe Feustle
Toledo, Ohio

Supporting Our Readers

Roberta Furger's October reports on technical support [*Consumer Watch* and "Who Pays for Tech Support?"] were first-rate. What other computer publication offers this kind of consumer assistance? With my business's investment in software and hardware growing yearly, this sort of information is invaluable. Most businesses are tied to upgrading software they already have, but purchase decisions need to take vendor support into account as well. Otherwise, we could wind up paying for each new package several times over.

Leland Clark
Grand Rapids, Michigan

Keeping a Good Outlook

You've done a lot to improve *Industry Outlook* over the last few years. Lately, the articles seem more relevant. October's effort was outstanding. Your articles on *Windows* graphics packages ["Graphics Packages See New Competition"] and the dot matrix market ["Dot Matrix Printers Regroup Under Fire From Lasers"] were particularly good.

Evelyn Nesbit
Walden, Massachusetts

Sharing the Wealth

I was happy to see "The Best of Shareware 1990" Buyers' Guide in October. *PC World* is the only leading magazine I've seen give shareware its due. In my consulting work, I will frequently advocate a shareware solution—it's often the best and most economical way to go.

(continues)

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Among my clients, the newer users are often the most receptive, but they are also the least informed. So a piece like this is really helpful.

Charles Everest
Kansas City, Kansas

Light Stuff Is the Right Stuff

I appreciated your notebooks review in October ["Laptops With the Light Stuff"]. Just a year ago, it was logical to buy a Compaq LTE/286, and I don't regret the decision—I was able to fill an immediate need with a product that is still serving me well. But if I were buying today, I'd take a look at the Best Buys from Sharp and Texas Instruments before I made my purchase.

John B. Lee
Chattanooga, Tennessee

One thing that my own LTE/286 has that your Best Buy notebooks lack is the Compaq name and reputation for consistent quality. I've been toting my laptop back and forth across the country for over a year, and I've yet to have a problem. As far as I'm concerned, the LTE/286 is a proven winner.

Matthew Braun, Jr.
Washington, D.C.

Although I bought my Toshiba T1200XE before I read your notebooks review, I felt confident that I was making a good choice. It was reassuring to have you validate my selection—even though you didn't rate the Toshiba a Best Buy. I wanted the comfortable 5MB RAM capacity, and I've had good luck with Toshiba products.

B. T. Sullivan
Monroe, Wisconsin

Waiting for the Sequel

Your October SQL data base review interested me, as I had years of experience with mainframes before I took a position where I deal almost entirely with PCs. The informational graphics in your article were an effective aid in explaining some of the main issues, and I

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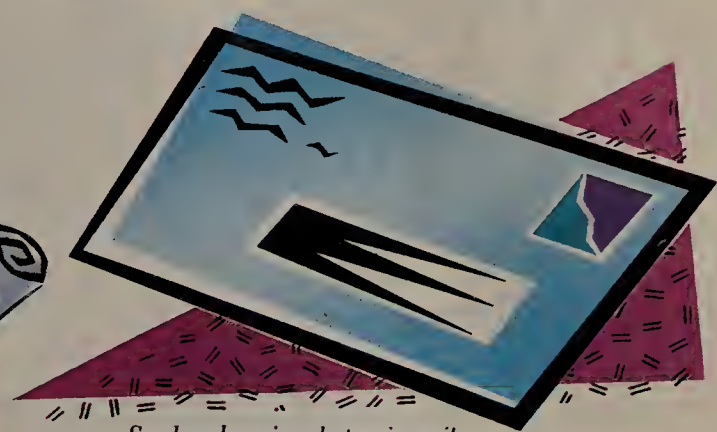

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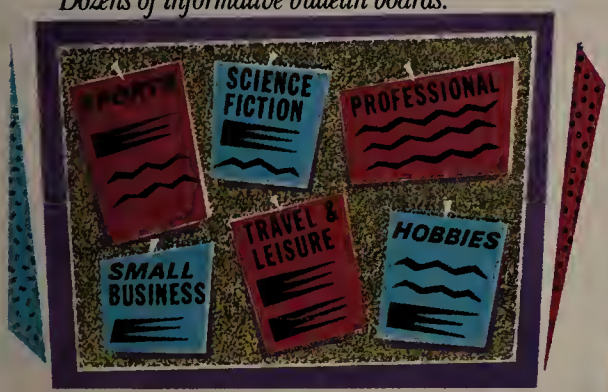

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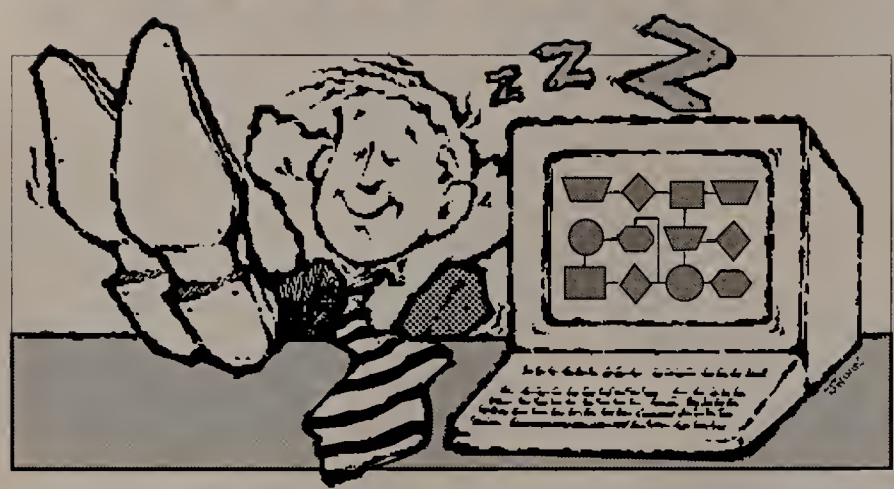

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think you did a good job overall. The ability to emulate mainframe capabilities and tap into the largest data bases is desirable, and I don't doubt we'll get to it. But like you, I think we have a while to wait. The situation seems not unlike the case of OS/2, which I fear has yet to deliver on its early promises.

B. B. Tuney
Stamford, Connecticut

A Changeless Look

Alan Schwartz's September *Data Basics* column on data base lookups discusses the use of the BROWSE command for creating a scrollable list of valid keys. He correctly points out that "it's far too easy to change data inadvertently while BROWSEing." It's also far too easy to add unedited keys to the lookup data base with BROWSE unless the NOAPPEND option is used. NOAPPEND suppresses the 'Add new records?' prompt that normally appears when the end of the file is reached.

Roger W. Sauer
Fairfield, California

Corrections and Clarifications

An October *Update* item states that WordPerfect Corporation's *WordPerfect Office Editor 3.0* is available as a separate program. The program is now available only with *WordPerfect Office 3.0*, which lists at $149 for the standalone version.

Here are some further updates and additions to our annual nationwide guide to user groups, which appeared in the August *Consumer Watch*. As always, we invite user groups to keep us up-to-date.

ABBREVIATIONS KEY: NL—newsletter; SIG—special interest group; TS—technical support; TE—training and education; BBS—bulletin board service; SL—software library.

(User groups are listed alphabetically by state and city, not by user group name.)

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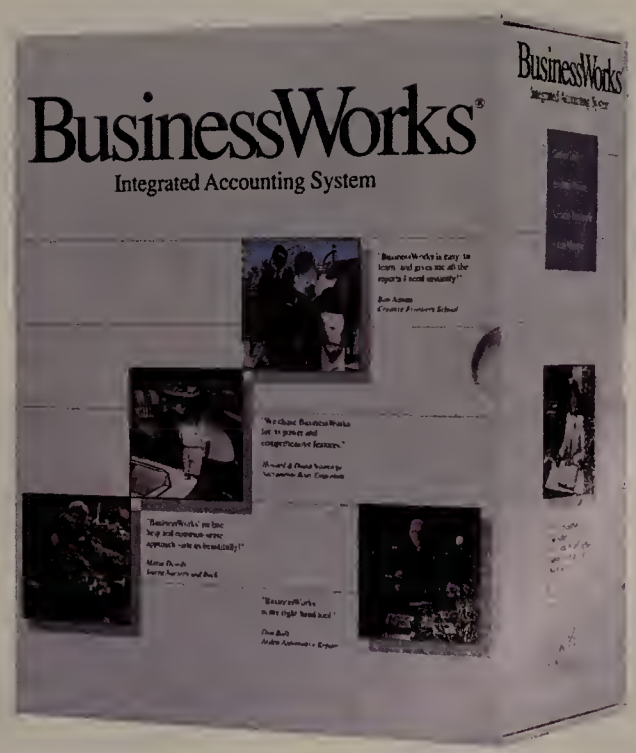

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Communal Computing (nonprofit/religious organizational support), 20 W. Gude Dr., Rockville, MD 20850-1150; 301/598-9062, 301/294-1007 (fax); $36/yr.; NL, TS, TE, BBS

National Epson Users Group, P.O. Box 1076, Lemont, PA 16851; 814/237-5511 (4–7 p.m. except Saturday); $25/yr.; NL, TS, BBS, SL

Greater Cleveland PC Users Group, c/o Dan Hanson, 3150 Payne Ave., Cleveland, OH 44114; 216/944-5173; $25/yr.; NL, 6 SIGs, TS, TE, BBS, SL

Upstate IBM PC User Group, P.O. Box 5521, Greenville, SC 29606; 803/281-7096; $25/yr. (renewal $15); NL, 4 SIGs, TS, TE, BBS, SL

Central Texas PC Users Group, c/o Robert Owen, P.O. Box 10169, Austin, TX 78766; 512/343-7284; $36/yr.; NL, 26 SIGs, TS, TE, BBS, SL

Red River Personal Computer Club, c/o Jerry Simpson, P.O. Box 1662, Wichita Falls, TX 76307; 817/761-7784 (day); $12/yr.; NL, TS, TE, SL

Madison PC Users Group, c/o Roger Glass, P.O. Box 2598, Madison, WI 53701-2598; 608/255-1205; $20/yr.; NL, 8 SIGs, TS, TE, BBS

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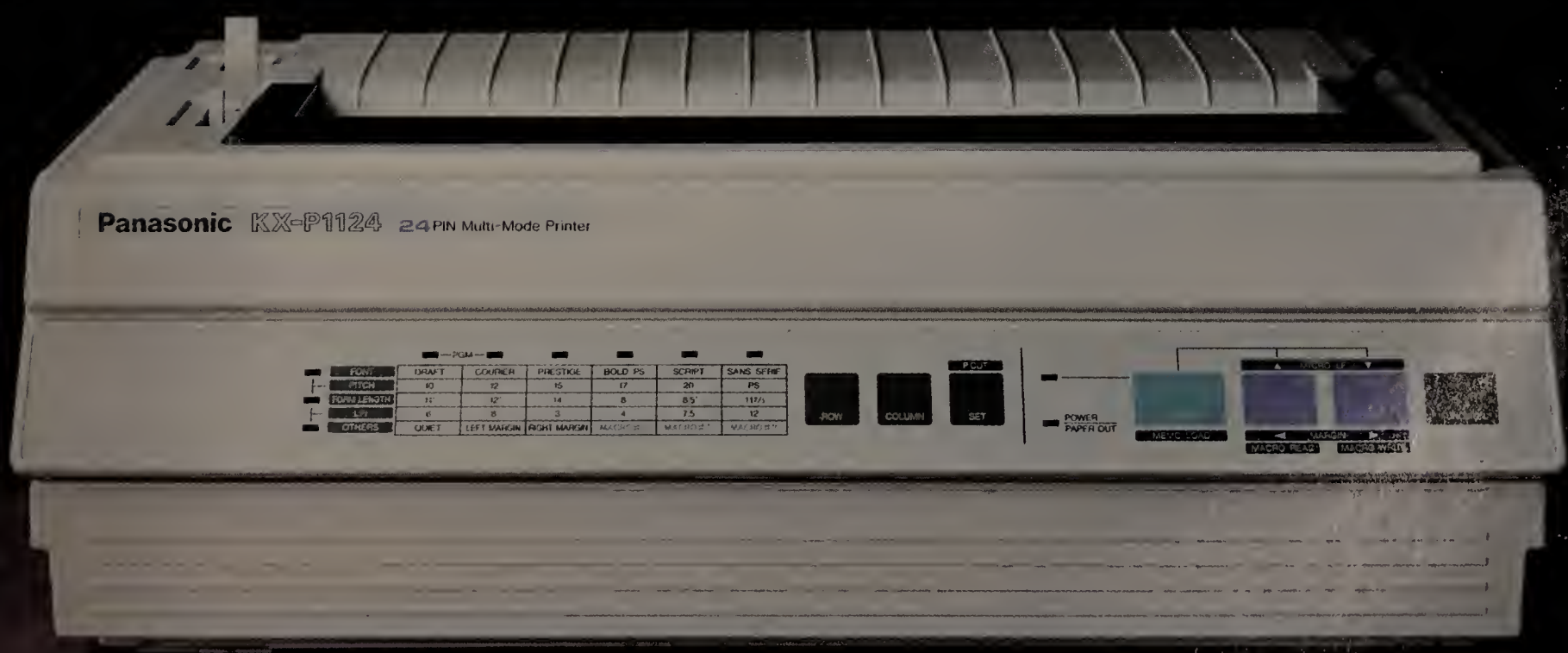

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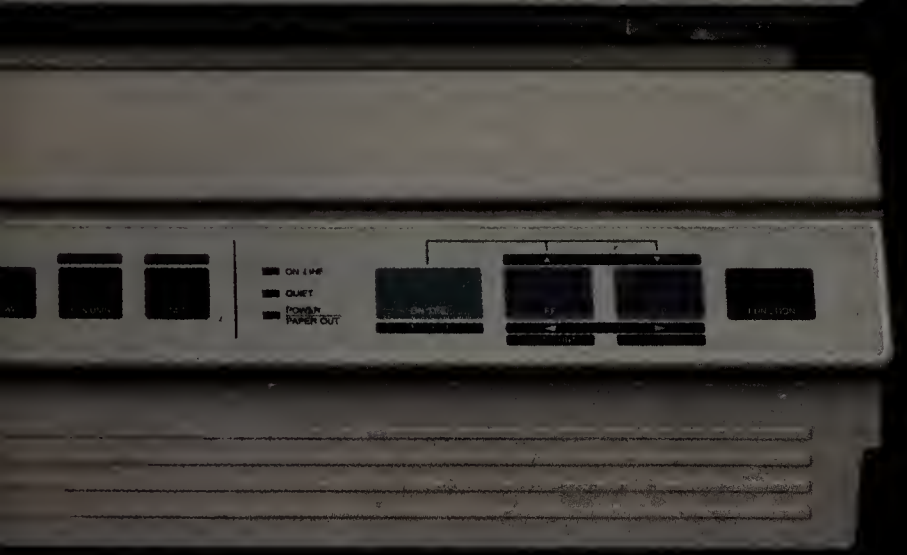

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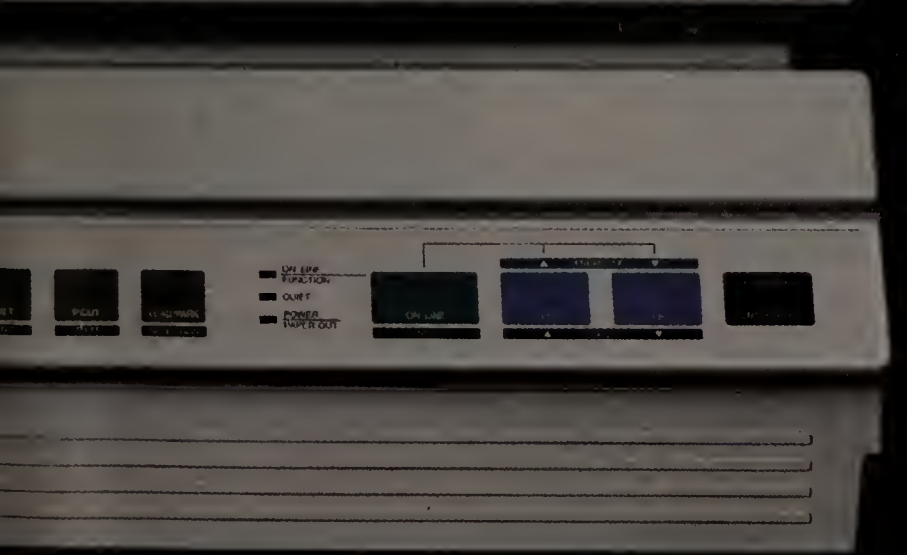

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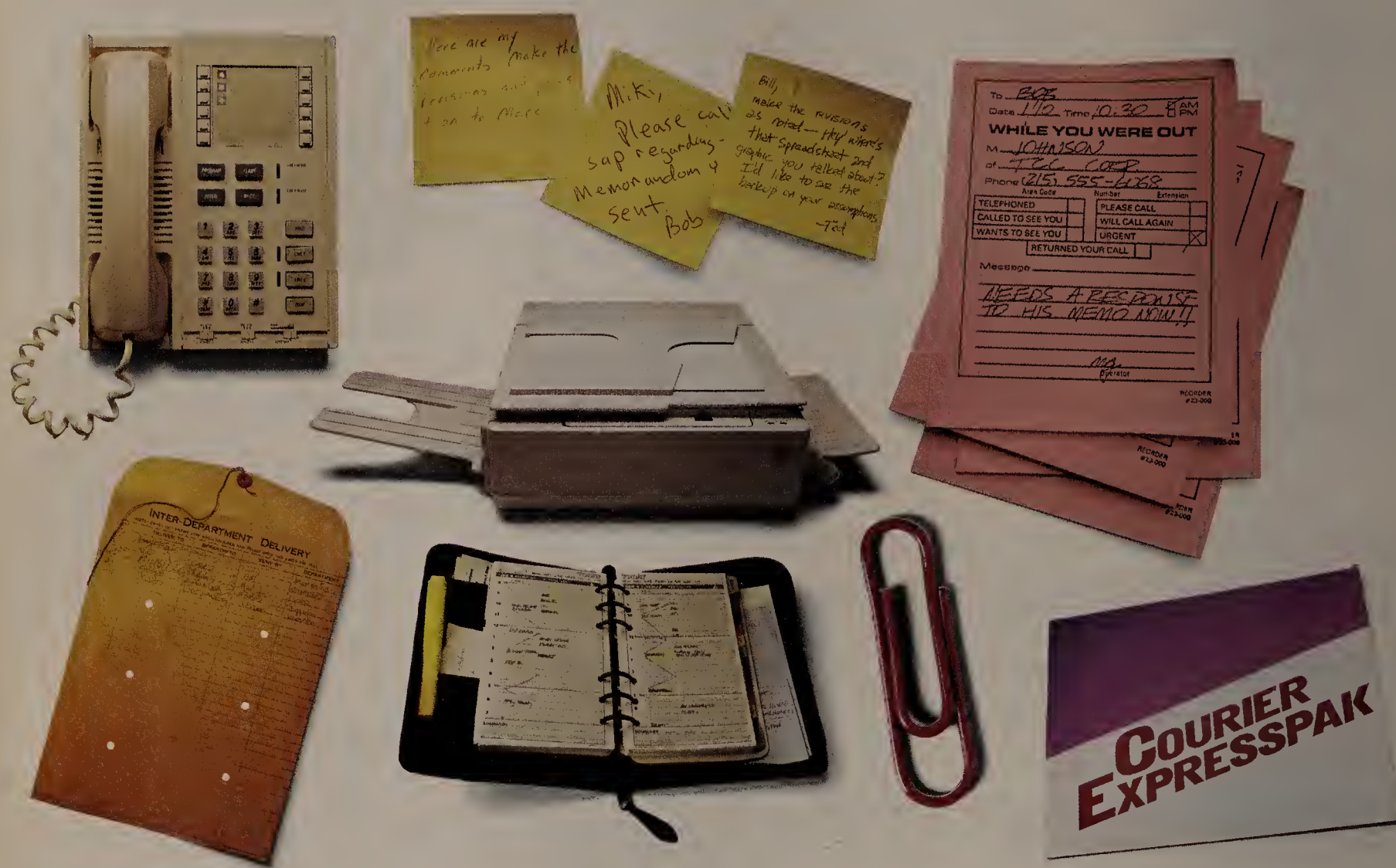

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Circle 84 on reader service card

FINALSOFT

THE HELP SCREEN

PC World offers answers and advice at every level

Speed up document labeling in WordPerfect, banish shareware start-up mysteries, minimize back-up drudgery with a partitioned hard disk, and more.

Karl Koessel

Put a Document's Name Inside Its File

Q. *To identify my* WordPerfect *documents for future use, I often add the document's path and file name at the end. I'm currently typing this information by hand but would rather produce it using a macro. How do I write a macro to retrieve the file's path and name?*

Finn Nielsen
Washington, District of Columbia

A. *WordPerfect 5.1*'s {SYSTEM} macro command will solve your problem. Like most of this word processor's macro commands, {SYSTEM} can't be inserted while a macro is being recorded; it must be inserted during a macro editing session. Moreover, you can't *create* a macro with the editor but can only alter an existing one.

To begin creating a macro that automatically adds the file name and path, press **<Ctrl>-<F10>** and enter a name and description for the macro. Press **<Home><Home><Cursor Down>** (which brings the cursor to the end of the file), and press **<Ctrl>-<F10>** to stop recording. To reach the macro editor, press **<Ctrl>-<F10>** again, type in the new macro's name, press **<Enter>**, and select *Edit* from the options presented.

Move the cursor to the bottom of the macro. Press **<Ctrl>-<Page Up>** to bring up the macro command menu. Type **sy** to highlight {*SYSTEM*} *sysvar*~, and press **<Enter>** to select the command. Type **path**~, press **<Ctrl>-<Page Up>sy<Enter>** again, and type **name**~. Press **<F7>** to exit the macro editor. When you run the macro, the path and name of the current file is added to the bottom of the file.

Running Shareware

Q. *Now and again I look at new shareware programs, paying for those I decide to use. However, there are some that I can't figure out how to start. When I issue a DIR command, none of the file names provides a clue. How do I start these programs?*

D. Thomsett
Pembroke, Ontario, Canada

A. If one of the files on the shareware disk is called README, READ.ME, README.TXT, README.1ST, or something similar, look at that file first. README files are usually straight text and typically contain instructions for installing and using the program(s) on the disk. (Even commercial programs use README files to convey late-breaking information that's not in their manuals.) You can display a small text file by entering **type**, a space, and the file's name at the DOS prompt. For a larger text file, use the DOS command **more** <*filename* or load the file into any word processor, text editor, or DOS-shell file viewer. README files often are formatted so

With DOS 3.3 and later, you can partition a hard disk into multiple logical drives to keep programs and data separate.

you can print them by simply using the DOS command **copy** *filename* **prn**.

If there's no README file, try looking for an executable file—a file with an EXE, COM, or BAT extension that you run by entering the file name at the DOS prompt. If more than one file has such an extension, try to guess by the names which file to run first; for example, a file called INSTALL or SETUP is a pretty good choice to start with.

Many shareware programs are distributed in compressed form, using either the *PKARC* or *PKZIP* format. If your new shareware program is a single file with an ARC or ZIP extension, you must decompress that file to create the program's file or files. Both *PKARC* and *PKZIP* have decompression utilities and are widely available as shareware. Sometimes shareware comes in a single EXE file that decompresses the files it contains when you run it—it doesn't need *PKARC* or *PKZIP*. With luck, you'll find a README and an IN-

(continues)

ANTHONY RUSSO

STALL file among the decompressed files.

Partitioning Your Hard Disk

Q. *In "Tame That Hard Disk"* (The Help Screen, *October 1990), you suggested a method of organizing a hard disk to keep programs and data separate. The technique called for creating two logical drives—one for programs, the other for data. Only the data drive needed to be backed up regularly.*

But I can't figure out how to do it. Could you please explain how to turn one real drive into two logical ones?

George James
San Jose, California

A. With DOS 3.3 and later versions, you can partition your hard disk into multiple logical drives, each of which looks to DOS like a single hard disk. Before doing this, back up your hard disk thoroughly; partitioning it will destroy your data.

Once you're safely backed up, create a bootable floppy (**format a:/s**). To that disk, add FDISK.COM and FORMAT.COM—both of which come with DOS—and the program needed to restore your backup. Run FDISK from either the hard disk's DOS directory or the floppy, and then follow the prompts—first to *remove* the DOS partition, and then to install a new primary DOS partition and the extended DOS partition you desire.

Exit FDISK, reboot using the bootable floppy, and format the new logical drives using **format c: /s** and **format d:**. From your backup, you now can restore your programs to the new C: drive and your data to the new D: drive.

The FDISK command of DOS versions prior to 3.3 can't create multiple DOS partitions, but commercial partitioning programs (such as Storage Dimensions' *SpeedStor* and Ontrack Computer Systems' *Disk Manager*) can do the job.

Toggling the Lock Keys' Lights

Q. *I've been using LOCKKEY2.COM ("Nixing Num Lock,"* The Help Screen, *August 1990) on a number of XT compatibles in our office. While it sets Caps Lock, Num Lock, and Scroll Lock as desired, it doesn't affect the lights on the keyboard. From this I've concluded that the program is meant only for 286 and 386 machines. Can it be modified to properly control an XT clone?*

Larry Keeping
Mississauga, Ontario, Canada

A. LOCKKEY2.COM is *not* meant only for 286 and 386 machines. The program works correctly, but your XT clones' keyboards don't. Their Lock key lights (which you won't find an IBM PC or XT) toggle on and off in response to keystrokes but don't reflect what's happening inside the computer. Keyboard companies added the lights to mimic the *look* of IBM's AT keyboard, which receives as well as sends information. Each of the lights on an AT keyboard is tied to the state of its Lock key, not to the key itself. No one has yet designed a PC or XT compatible that supports the AT-style bidirectional keyboard.

Weitek and Intel Math Coprocessors

Q. *I would like to know more about the Weitek math coprocessor. From what I've read about it, I gather that it's faster and more expensive than an Intel 80387 chip, but that's all I know. Can I use the Weitek instead of the Intel chip? My proposed application for it would be* AutoCAD.

John Lawrence
Kenai, Alaska

A. Last year Weitek reduced the prices of its 3167 coprocessors, which now are almost identical to Intel's 80387 prices. Weitek's coprocessors, like Intel's, come in various speeds so that you can, for example, install a 25-MHz coprocessor in a 25-MHz system. You can't install the Weitek coprocessor directly in an Intel 80387 coprocessor socket—such a socket requires an adapter. However, if you have one of the many 386 compatibles that include the extended math coprocessor (EMC) socket, you can plug in either coprocessor.

The Weitek can't process instructions for the 80387 (and vice versa); your software's math routines must be compiled for either one coprocessor or the other (although some software includes both compilations and automatically determines which to use). *AutoCAD* uses the 80387 but currently doesn't include Weitek compilations—however, *3D Studio* and *RenderMan* do.

For a typical drawing, the 3167 is about 2½ times faster than the 80387; the more floating-point calculations, the faster the 3167 is (and the more integer calculations, the closer it comes to matching the speed of the 80387). The Weitek's superior speed is due in part to its greater number of registers (thirty-two 32-bit registers versus the 80387's eight 80-bit registers) and its seven-element instruction queue (the 80387 doesn't have one).

The Weitek can operate as though it has sixteen 64-bit registers to perform IEEE double-precision calculations. The 80387, with 80 bits per register, can use a wider range of larger and smaller numbers (extended double-precision) than the Weitek can. Some commercial software looks for an 80-bit coprocessor, and software developers such as Microsoft and Borland, among others, are supporting math coprocessors from Cyrix that are fully compatible with the 80387.

Weitek is also the only company that currently offers a 486-compatible coprocessor (the 486 has an 80387 clone built in). The 4167 is supported by 486-based systems from Compaq, ALR, AST, and others.

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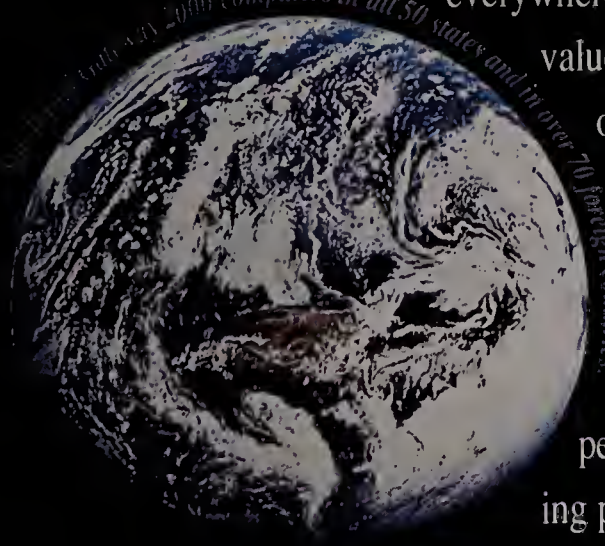

In Gothenburg, Sweden

Anders Bjernefors, a computer dealer and programmer, bought a Gateway 2000 25 MHz 486 system last April. "After many faxes and a lot of study, I selected Gateway 2000," said Anders. "I'm pleased with the machine. I received a very powerful, well-built computer for an astonishingly low price."

Anders Bjernefors, Computer Link, Gothenburg, Sweden, with his Gateway 2000 25 MHz 486.

Anders was so impressed by his system and by the people at Gateway that he contacted the company about becoming a Gateway 2000 reseller. "I telephoned my salesman," Anders remembered, "and he told me I'd have to visit the factory to make the arrangements. I was on the next plane out of Goteborg on my way to North Sioux City, South Dakota."

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In Worland, Wyoming

Bob Borst, owner and operator of Cloud Peak Pest Control in Worland, spent two and a half months researching his computer purchase. He chose a Gateway 2000 386SX.

Bob Borst, owner and operator of Cloud Peak Pest Control, and his Gateway 2000 386SX.

"My final decision was based on people, not hardware," said Bob. "The Gateway people make you feel like you're the most important person in the world. I didn't buy a computer – I bought Gateway."

Bob was equally impressed by Gateway's service people. "One time I got into a file and couldn't get out of it," Bob related. "Even though it was a software problem, I called Gateway and they talked me through it."

In Socorro, New Mexico

Gordon Kane, Laboratory Associate at New Mexico Tech, runs a computer lab with 15 Gateway 2000 286 systems. "At first we bought Gateway's because of the good prices," said Gordon. "But now I buy them because of the technical support, which is very superior, and because the company is committed to improving its product line."

Gordon Kane, New Mexico Tech, with his Gateway 2000 286 lab computers.

NMT also uses Gateway computers in its research programs. "A Gateway 386 cache system will be used

Choose Gateway 2000!

at Kennedy Space Center next summer," said Gordon, "as part of a large program of thunderstorm studies being conducted there by NASA and the Air Force."

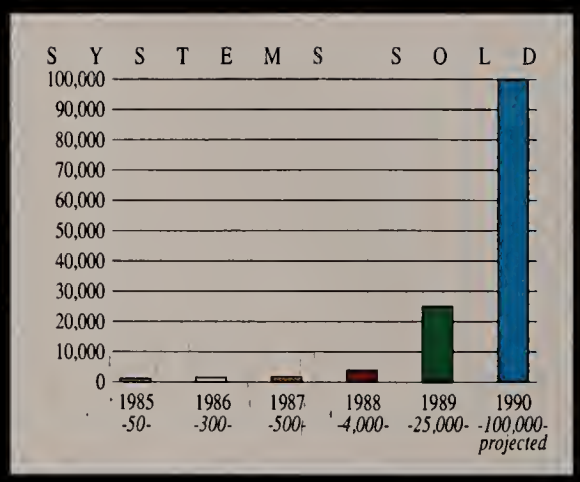
PC Magazine's survey about service and reliability confirms what these customers are saying:

"Gateway shared top billing with such heavyweights as Compaq, IBM, and HP for those who would buy their products again...Overall, Gateway's high marks bode well for the company's future, as does its commitment to customer service."

PC Magazine
September 25, 1990

From the Heartland

The combination of price, quality and service makes Gateway 2000 the best value in the industry. But value alone doesn't explain how a little company in the Midwest, just celebrating its fifth anniversary, managed to outdistance hundreds of other companies, selling more systems through the direct market channel than any other PC manufacturer in the country.



Gateway 2000 sells more computers through the direct market channel than any other PC manufacturer in the country.

"It was the cows," laughed Ted Waitt, Gateway 2000 President and CEO. "Of course." Computer magazine readers will remember the company's early ads featured a picture of the Waitt cattle farm with the headline, "Computers from Iowa?"

"We can't run that ad anymore," continued Ted, grinning, "because we built a new plant 14 miles down the road in South Dakota. But the cows really worked for us. They made the phones ring. From then on, though, we built our business on value – good prices on quality systems with old-fashioned, personal service."

5TH ANNIVERSARY GATEWAY 2000

Ted mentioned another reason for Gateway's success. "We take a long-term approach to customer service," he said. "When you buy a computer from Gateway 2000, you become part of our family and we're going to be there for you as long as you own that machine."

"In the computer industry, longevity should be measured in dog years."

As Ted talked about the company's fifth anniversary, he laughed again. "In the computer industry, longevity should be measured in dog years," he chuckled, "because everything's moving so fast. That makes Gateway 35 years old! But seriously, we've come a long way in five years. And I owe it all to the great people at Gateway and to our customers."

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NETWORK Q&A

Keep NetWare 286 Servers Sailing Smoothly Through Windows Waters

Keith Nickerson

Q. *We are having problems running* Windows 3.0 *on our NetWare 286 network. Specifically, when* Windows *usage is particularly heavy, the network crashes. We have noticed in the File Server Statistics Summary screen of FCONSOLE that the amount of memory used from Dynamic Memory Pool 1 gradually approaches the maximum amount available (16,786 bytes). When this happens, we sit there helplessly, waiting for the impending crash. Do you know why the network is crashing and how we can prevent it?*

Carolyn Smith
Oakland, California

A. What you are observing on your network is a conflict between *Windows 3.0* and the new (version 3.01) NetWare enhanced-memory shells for *Windows*.

NetWare 286's Dynamic Memory Pool 1 stores in a 200-byte entry drive mappings and temporary file service request buffers for each user who logs on to the network. When the user logs off the network, NetWare clears the entry, freeing the 200 bytes. With a total of 16,786 available bytes, it obviously would take a lot of users logged on to exhaust the pool's available memory.

Enter *Windows 3.0*, with its ability to run multiple DOS windows—virtual machines—in extended and expanded memory. Whenever a user on your network runs a DOS application under *Windows*, NetWare creates an entry in Dynamic Memory Pool 1. In addition, initial versions of Novell's XMS and EMS NetWare workstation shells cause NetWare to create another entry every time a *Windows* user *closes* a DOS application or exits *Windows*. That memory is not freed until the user logs off the network, thereby adding significantly to the drain on Dynamic Memory Pool 1. If several *Windows* power users on your system continually open and close DOS windows and run and exit *Windows*, but don't log off the network, the pool can easily become fully allocated, causing the server to crash.

(Note that NetWare 286 networks running the conventional-memory workstation shells, NET3.COM and NET4.COM, do not have the problem of overallocating Dynamic Memory Pool 1. Nor does the overallocation problem occur on NetWare 386 networks, because that operating system can dynamically allocate more memory to the pool.)

Novell's latest release of its XMS and EMS shells, version 3.01 revision D, solves the problem. To determine which revision you have installed, type **xmsnet3 i**, **xmsnet4 i**, **emsnet3 i**, or **emsnet4 i**, depending on which shell you use, at the DOS prompt. (The NetWare shell file must be in the current directory or in a directory referenced in your system's PATH command.) The revision D shells are available from the NDD forum on CompuServe (GO NDD) and may be available via your local Novell dealer.

If you can't get ahold of the new shells right away, you can solve the problem by placing the statement **NWShareHandles=true** in the [NetWare] section of each user's *Windows 3.0* SYSTEM.INI file. This fix should allow you to run *Windows 3.0* on NetWare 286 without overallocating Dynamic Memory Pool 1.

Here are some additional tips for running *Windows 3.0* on NetWare:

- If, after loading the network shell, you load *Windows* in enhanced mode and it "hangs," there's probably a memory conflict between the *Windows* memory manager and the memory addresses used by your network interface card. Try adding either the line **EMMExclude=A000-C7FF** or **EMMExclude=A000-EFFF** to the [386enh] section of SYSTEM.INI.
- If you are having problems printing over the network with *Windows*, Microsoft recommends adding the line **NetHeapSize=58** to the [386enh] section of SYSTEM.INI.
- In enhanced mode, *Windows'* virtual memory capability enables it to open more programs and files than fit in your machine's installed memory by swapping chunks of code to disk. Swapping to a local disk bogs down *Windows'* performance, and swapping code to a network drive is even slower. You can disable the virtual memory capability by placing the line **Paging=No** in the [386enh] section of SYSTEM.INI.

Keith Nickerson is the editor of NetWare Advisor *and a member of the publishing team of Business Systems Group, a Houston-based network consulting firm.*

POWER TIP NO. 155

Closing Windows Safely

When you quit the *Windows 3.0* environment, don't start typing before the DOS prompt appears. *Windows* needs a little time to clean up and close down, and keystrokes can interfere with this process. You may freeze your system, and the DOS prompt may not appear at all. If this happens, even pressing **<Ctrl>-<Alt>-<Delete>** won't work—you'll have to press your reset button if you have one, or turn your computer off and on.

Robert Luhn
Senior Editor

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Mix Text and Graphs on One Page	**Yes**	No	**Yes**
Word Wrap Around Graphs	**Yes**	No	No
Multiple Graphs on One Page	**Yes**	No	**Yes**
Print Multiple Worksheets at Once	**Yes**	No	No
Auto Compress to Print on One Page	**Yes**	No	No
Worksheet Zoom	**Yes**	No	No
Color Palette	**224**	8	16
Automatic Keystroke Recording	**Yes**	No	No
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CONSUMER WATCH

Advice and information for the computer consumer

From Sears to Radio Shack to umpteen mail-order firms, you can buy a computer almost anywhere. We survey the pricing and know-how of six very different outlets.

Roberta Furger

You'd Better Shop Around

Looking for a PC for home use? You won't have far to look. Alternatives to the traditional computer retail store and mail-order firm are springing up all over. You can stop by Sears Brand Central and check out the computers after you pick up the kids' school clothes. Or how about that low-priced clone you saw on your last few trips to the grocery warehouse? Everything else there is cheap...

How can you find the best deal? It's certainly convenient to buy your home computer where you purchase your other major appliances, but will you get the system that best suits your needs? And will the price be competitive?

To put these issues in perspective, we did some comparison shopping. We visited department stores and computer dealers and called leading mail-order companies to find the best combination of competitive pricing and helpful assistance. And the results surprised us.

Our comparison-shopping scenario went like this: We're setting up a home office and need a computer primarily for word processing. We also intend to run spreadsheets and personal finance applications. We haven't made the switch to *Windows* but are considering doing so. It's our own money, so price is *very* important, but we also want to make a solid investment. Although not computer novices, we've never purchased a system before.

Act One: Sears Brand Central

We went into Sears to look at the PS/1 but were quickly steered toward other options: 286 and 386 computers from Laser and Packard Bell.

"The PS/1 is good if you don't know anything about DOS," said the salesperson. "But it costs more, has a smaller hard drive, and runs slower [than the clones]."

So far, so good. But a few minutes later the salesperson (who also sold TVs, VCRs, and a small jungle of other electronics equipment) had exhausted his knowledge.

"What's the main advantage of going with a 386 versus a 286?" we asked. "Speed," he answered. "And the 386 has more megabytes."

Hmmm.

But what he lacked in technical knowledge, he made up for with helpful consumer advice. He suggested, for example, that we go with the Laser system, since "you can get through to their technical support." He also proudly described Sears' low-price guarantee—if we could find the same system for less within 30 days, Sears would pay us the difference. And if we weren't completely satisfied, we could get a complete refund within 60 days.

Unfortunately, the price wasn't anything to write home about: $1778 for a 286 system. You should be careful, then, about buying through this type of channel. Novices should be especially wary—they may end up paying too much for a system that won't necessarily meet their needs.

Act Two: Moving Upscale

Next, we tried Whole Earth Access, an upscale department store. Whole Earth differs from Sears in that it has a dedicated computer department and sells name-brand systems, including Compaq, Apple, and Toshiba. It also has a knowledgeable sales staff.

What type of system did Whole Earth's sales staff suggest?

"Go with the 386SX; it'll only cost you $100 more than the 286," the salesperson told us. "Besides, the 286 is becoming obsolete"—a point *PC World* has also made.

Our choice, he said, was between a Premier 1500 (a 16-MHz 386SX) and a Hyundai Super286e. When we asked about the Compaq Deskpros on display, he shook his head and told us matter-of-factly that they cost twice as much.

The Whole Earth employee knew a lot about PC hardware and software, rattling off the reasons why *Windows 3.0* would run better on a 386SX than on a 286 system and discussing options we might consider, such as a second 3½-inch floppy. He obviously had his own opinions but didn't try to force any one system on us.

The grand total for the SX he recom-

(continues)

ANTHONY RUSSO

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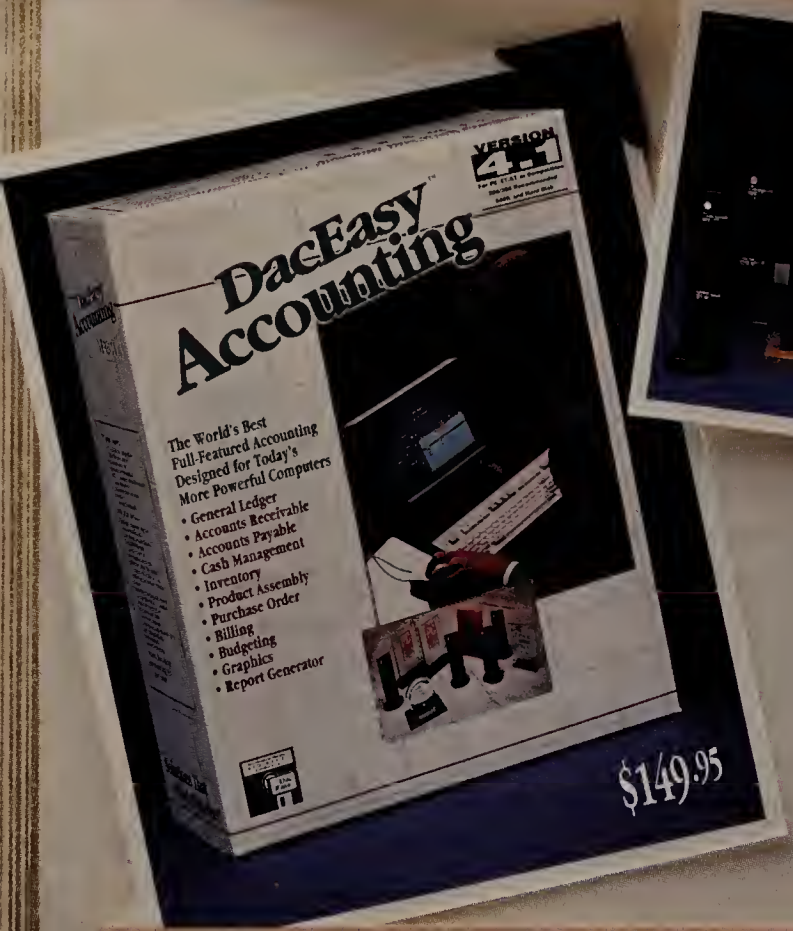

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-Price Waterhouse Report on Low-Cost Accounting Software
PC Magazine, April 10, 1990

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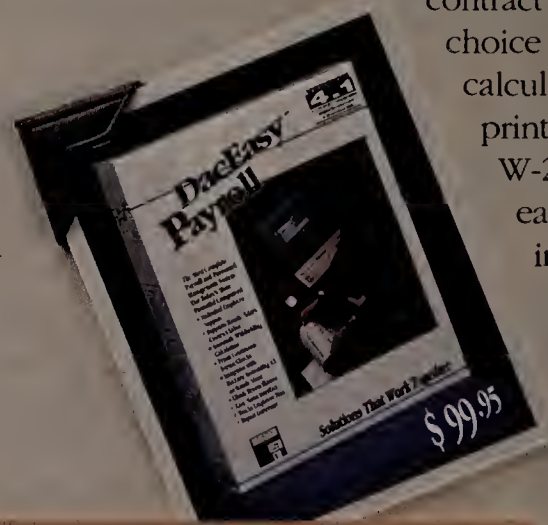

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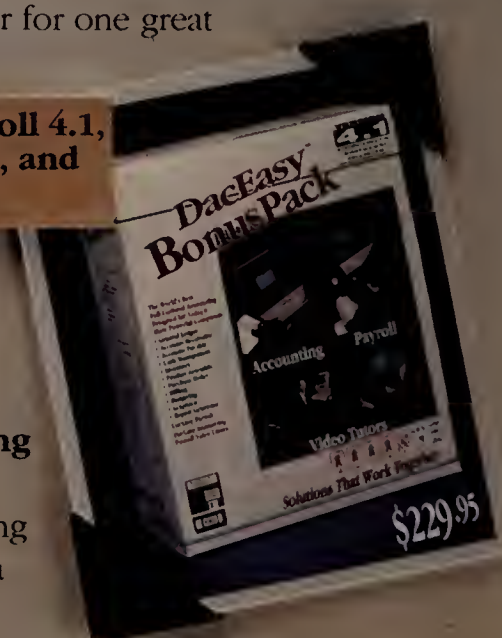
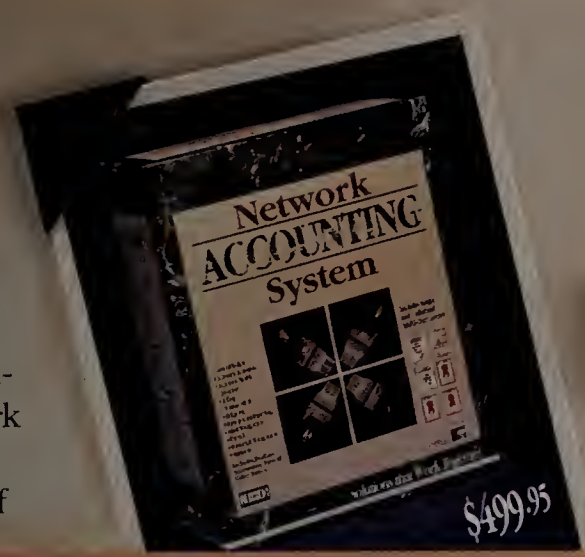


Hardware Requirements:IBM or compatible PC's (Light Checkbook for Macintosh-Plus, SE, II). Accounting 4.1-640K, Hard disk, DOS 3.1 or later, mouse optional. Payroll 4.1-512K, Hard disk, DOS 3.1 or later,mouse optional. Network Accounting-Net Bios Compatible LAN, 640K, DOS 3.1 or later, mouse optional. Sylvia Porter's RapidTax 512K, Hard Disk, DOS 2.1 or later, Accounting 3.1 512K, 2 disk drives, DOS 2.1 or later. Light Checkbook Accounting (PC)-256K, One Disk Drive, DOS 2.1 or later. Macintosh is a trademark of Aple Computer, Inc. DacEasy, Light, and RapidTax are trademarks of DacEasy, Inc.

Accounting Software.



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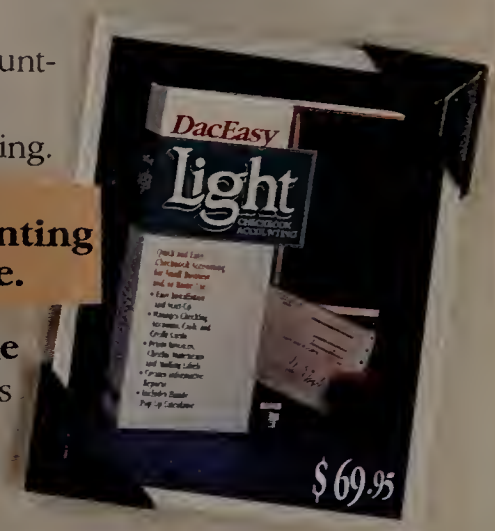

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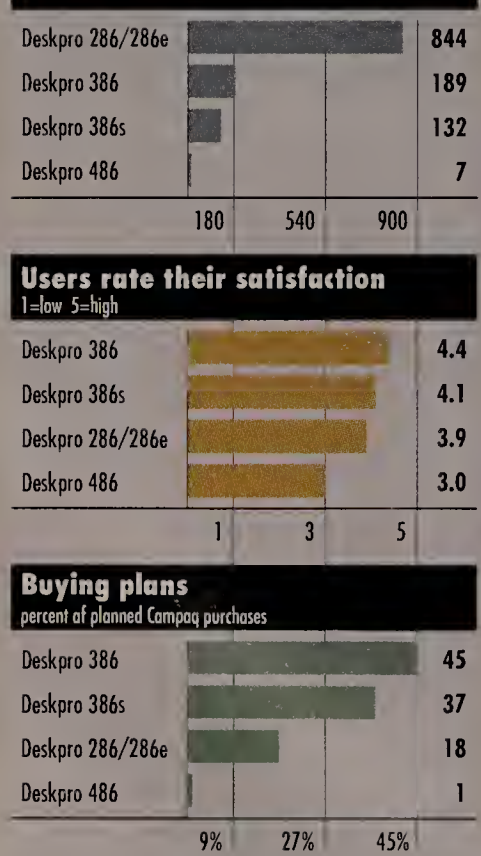
RATE YOUR SATISFACTION: Compaq Desktop Computers

Compaq continues to get relatively high marks in user satisfaction, with only the newest system, the Deskpro 486, failing to get higher than the mean score in this area. PCs based on the 286 chip—both the original Deskpro 286 and the more recent 286e—make up the largest portion of the installed base of desktop models, according to this survey of 206 large organizations. But their more capable siblings, the 386SX-based Deskpro 386s and the Deskpro 386, rank higher in plan-to-buy statistics. Surprisingly few respondents had purchased the high-powered Deskpro 486 or planned to do so within six months.



Source: International Data Corporation. From a survey of 206 large organizations, each with at least 50 PCs. (Percent totals don't add up to 100 due to rounding.)

mended? A reasonable $1794 for a 386SX with a color VGA monitor. The "extras" made the deal even sweeter: on-site service for one year, technical support through both Whole Earth and the manufacturer (provided we went with the Premier), and a 2-hour DOS instruction class.

Act Three: A Tandy Deal

Although you may pay a little more with traditional dealers, you benefit from a more knowledgeable sales force and from after-sale service that should meet your every need. That's the theory we tested in visits to a Radio Shack Computer Center and a ComputerLand dealer.

Not surprisingly, in both cases salespeople were well versed in PC technology and explained in detail the ramifications of going with a 286 versus a 386. However, their sales styles and the deals they offered varied considerably.

The Radio Shack salesperson listened to our list of applications and then promptly showed us the Tandy 2500XL, a 286 with 1MB of memory and a 52MB hard drive. "For what you're doing, you won't be able to tell the difference in speed," he told us.

But does a 286 make sense as a long-term investment? "You don't buy a car expecting never to buy another one, right? You shouldn't buy a computer that way either."

This was a refreshing change from the "more is always better" argument. But we didn't get the feeling that we could call with a problem or question—one of the chief benefits of turning to a local dealer. When we asked about technical assistance, the salesperson referred us to the technical support department at Tandy's headquarters.

Act Four: Lost in ComputerLand

As soon as we walked in the door, the ComputerLand salesperson loaded us down with literature on printers before we could tell him what we were in the market for. Once he asked us our needs, he showed us the two IBM PS/2 models on the floor: the Model 30 286 and the 386SX-based Model 55SX. Either would fit our needs, he said.

Although the store also sold Arche and Epson systems, the salesperson didn't offer any information on either brand. In fact, although he was very knowledgeable, we had to pump him for information. Eventually, he told us what we wanted to know about pricing, service, and performance trade-offs for each brand, but it took nearly an hour and a half of coaxing. Someone without much background in computers could easily wind up buying the most expensive system in the store—without learning about the other options.

Act Five: 1-800-PCs

Historically, mail order has had one advantage—price—and one disadvantage—shaky service. At least, that's the myth. We tested the myth and found it to be only half true.

We called two leading mail-order companies: Dell Computer and Northgate Computer Systems. In both instances, the salespeople were friendly, knowledgeable, and willing to spend as much time as needed to answer our lengthy list of questions.

The Dell representative recommended a 386SX, noting its relatively low price (only $200 more than a similarly configured 286). "It's worth the investment," she said, explaining the difference between a 16-bit and a 32-bit data path and noting that some software, such as *Windows 3.0*, runs only on a 386. (In fact, *Windows 3.0* will run on a 286, although slowly, but her argument was otherwise sound.)

The biggest plus, though, was service and support: toll-free technical support for the life of the product and free on-site service for one year. The price? A competitive $2099 for a 16-MHz 386SX with 1MB of memory, a 40MB hard drive, and a VGA monitor. For slightly more than the Whole Earth system, you get a PC backed by a well-known supplier.

The Northgate representative was the only person to ask up front how much we wanted to spend. She tailored her suggestions accordingly.

"Because of what you want to do, I'd suggest a 386 system," she said. "If you were buying a system for your nephew so he could play games, I'd recommend a 286."

(continues)

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Other manufactures with their simple-minded direct-mapped Cache atchitectures were obsessed with churing out the best benchmark numbers. We, however, were not convinced DOS and Power Meter 1.3 is any example of a typical real life application (registering at 8.003 MIPS, we are not too shabby either). With Two-Way Set Associative Cache capability, our 386™ is also more attuned to run the emerging multi-tasking operating systems like OS/2® and UNIX™, where modular code sizes (of less than 32K) and frequent code-switching are norms. Worrying about compatibility? Both IBM® and COMPAQ® endorsed the same INTEL® 82385 Cache Controller. Furthermore, we enhanced it with page-mode and interleaved memory in the event of a cache miss. It is the closest to a true 0-wait-state implementation on the market.

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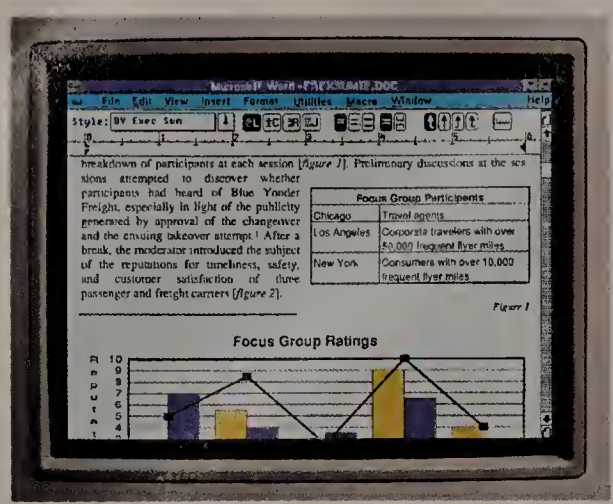

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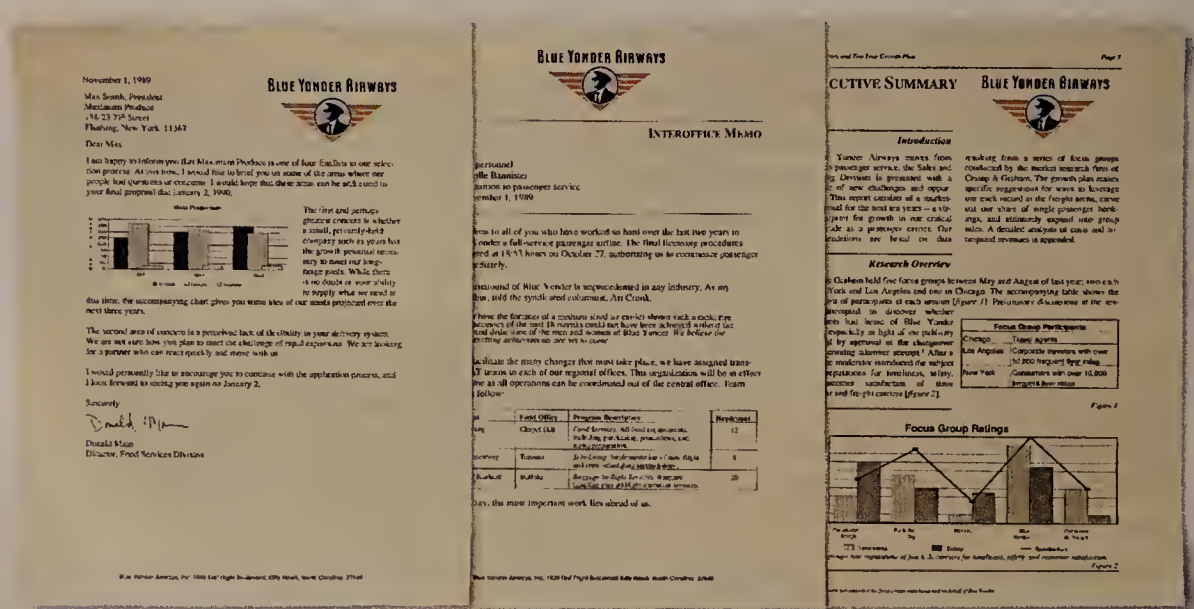

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In fact, she ended up recommending Northgate's Slimline 386SX. The 16-MHz monochrome VGA system sells for $1999.99 with 1MB of memory and a 40MB hard drive—only $400 more than a comparable 286.

Like Dell, Northgate offers toll-free technical support and on-site service. It also guarantees replacement parts by next-day air; so you're not left without a computer.

No mail-order firm can give the immediate up-close-and-personal attention a local dealer can promise (that's *promise*), but these two came close.

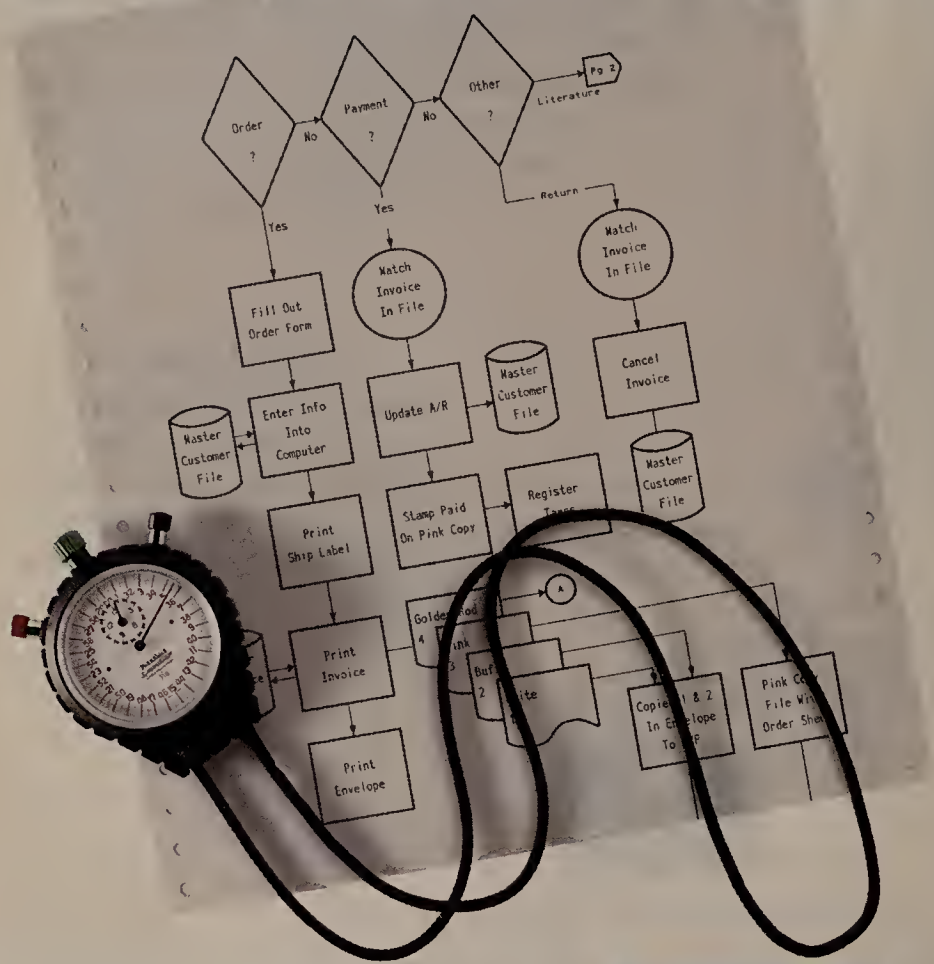
A Good Deal of Research

Top mail-order firms like Dell and Northgate offer low prices and good service, and they have stood the test of time. But the decision still isn't straightforward. For many of us, even the best service over the phone can't replace the security we feel when dealing with a local salesperson.

And PC pricing is nothing if not fluid. So last week's low-price leader won't necessarily top this week's list.

Your best bet is to do your own comparison shopping. Visit several stores *(continues)*

BY HAND. OR BY NOON.



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POWER TIP NO. 154

Preserving Your Windows 3.0 Desktop

It's easy to set up a personal desktop in *Windows 3.0*—but just as easy to lose it. When you exit *Windows* with the Save Changes box selected, *Windows* saves the current desktop, even if it's not the one you want. To make sure you can recover your desktop arrangement, go to the DOS prompt in your *Windows* directory and enter these commands to copy your configuration files to a backup directory:

```
md winbak
copy *.ini winbak
copy *.grp winbak
```

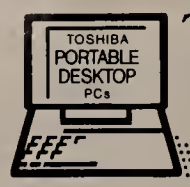
If you accidentally mangle your desktop, you can now restore it by going to the DOS prompt in your *Windows* directory and entering the command **copy winbak**; then start *Windows* in the normal way.

Whenever you make changes in your desktop, make sure you remember to save them in your backup directory.

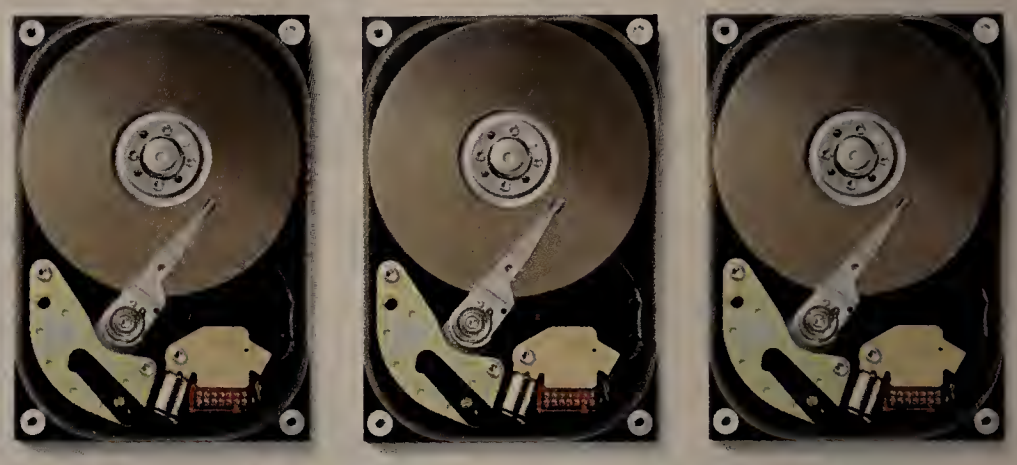
George Campbell
Contributing Editor

IT HAS BEEN
BROUGHT TO
OUR ATTENTION
THAT NOT EVERYONE
BELIEVES
PORTABLE PCS
CAN BE AS
FUNCTIONAL AS
DESKTOP PCS.

THIS SHOULD



This may be hard to believe, but there really is such a thing as a portable PC that can do everything a desktop PC can.



Some people can't imagine squeezing a 40, 100, or even a 200MB hard disk into a portable PC. But when they take advantage of all that storage capacity, they find it hard to imagine life without it.

In fact, there's not just one, but an entire line of them. They're called Toshiba Portable Desktops,™ and they'll forever change the way your company looks at power and productivity.

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What does all this mean in "real world" terms? It means your top people can do everything they've been doing with their desktop PCs.

There once was a day when microprocessors this powerful were unheard of in a portable. Luckily for people who crave raw power and computing speed, that day is over.

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It means your key employees can turn after-hours time into productive

For those who think a PC just isn't fully functional without a color display, we developed our second generation LCD color screen. For those who think basic is better, our VGA gas plasma systems have the perfect displays.

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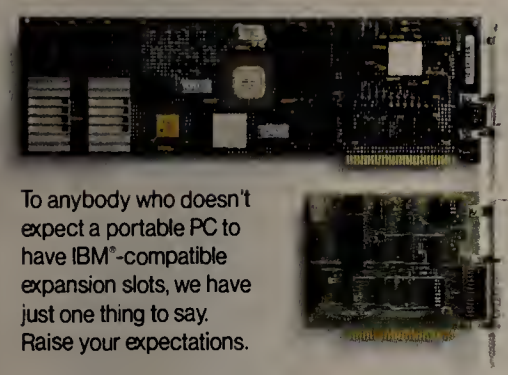


To anybody who doesn't expect a portable PC to have IBM®-compatible expansion slots, we have just one thing to say. Raise your expectations.

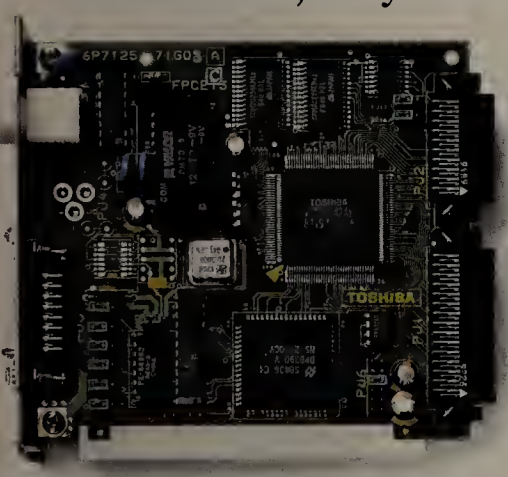
time, since their dining room tables and breakfast nooks can serve as off-site workstations.

And it means they can add more impact to presentations, with a wealth of information and power at their fingertips.

Anyone who insists portable PC users are doomed to cramped, undersized keyboards hasn't gotten their hands on a Toshiba. We use standard-size keys and standardized key spacing so your hands will feel right at home.

In fact, they can even increase productivity at their desks (while using up considerably less desk space, we might add).

In other words, it really is possible to have the capabilities of a conventional desktop in a portable.



With an expansion slot for a LAN card (or any other full-size card), you get complete networking freedom without giving up all your other expansion slots.

They say you can't squeeze much memory into a portable PC. But considering that our dedicated memory expansion slots let you add up to 12MB of RAM as your need for power grows, it looks like "they" were wrong again.

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T3200SX. 386™SX microprocessor, 40 or 120MB HDD, 1 to 13MB RAM, 2 IBM-compatible expansion slots (in addition to dedicated modem and memory slots), VGA plasma display.

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and make a few calls. You've got more options than ever before—use them wisely.

SHOP TALK

RP Systems Closes Its Doors

RP Systems, a mail-order company based in Oak Brook, Illinois, has gone out of business, leaving many customers waiting to see if they'll recoup the thousands of dollars they've sent to the firm for undelivered merchandise.

Consumer Watch has repeatedly attempted to contact company officials, but they have not responded to our inquiries. The company's phone lines have been disconnected. One of RP Systems' chief creditors, ITT Commercial Finance of Matteson, Illinois, seized RP's assets on September 25 after it failed to make payment on a loan.

Customers who have paid for merchandise but not received it should contact the Regional Postal Inspector, 433 W. Van Buren, Chicago, IL 60607-5401; 312/765-4605. If you paid via credit card, ask the card company to have the amount charged back to RP Systems (see *Consumer Watch,* May 1990).

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Circle 300 on reader service card

LANtastic Not So Fantastic

I bought a *LANtastic* LAN package from a local dealer and was told it would run our data base, *Filepro 16+*.

Problems developed immediately after installation. Users could not print to their own printers. The dealer tried to resolve the problem with Artisoft, which finally blamed *Filepro 16+*. I then had to try to prove to The Small Computer Company, maker of *Filepro 16+*, that its program was incapable of networking. The staff there spent hours trying to find out why I could not print while on the network, to no avail.

The local dealer at this point became frustrated trying to work with Artisoft and refused to rectify the matter. By this time nearly two months had passed, and Artisoft refused to honor any calls to provide assistance because the warranty period had expired.

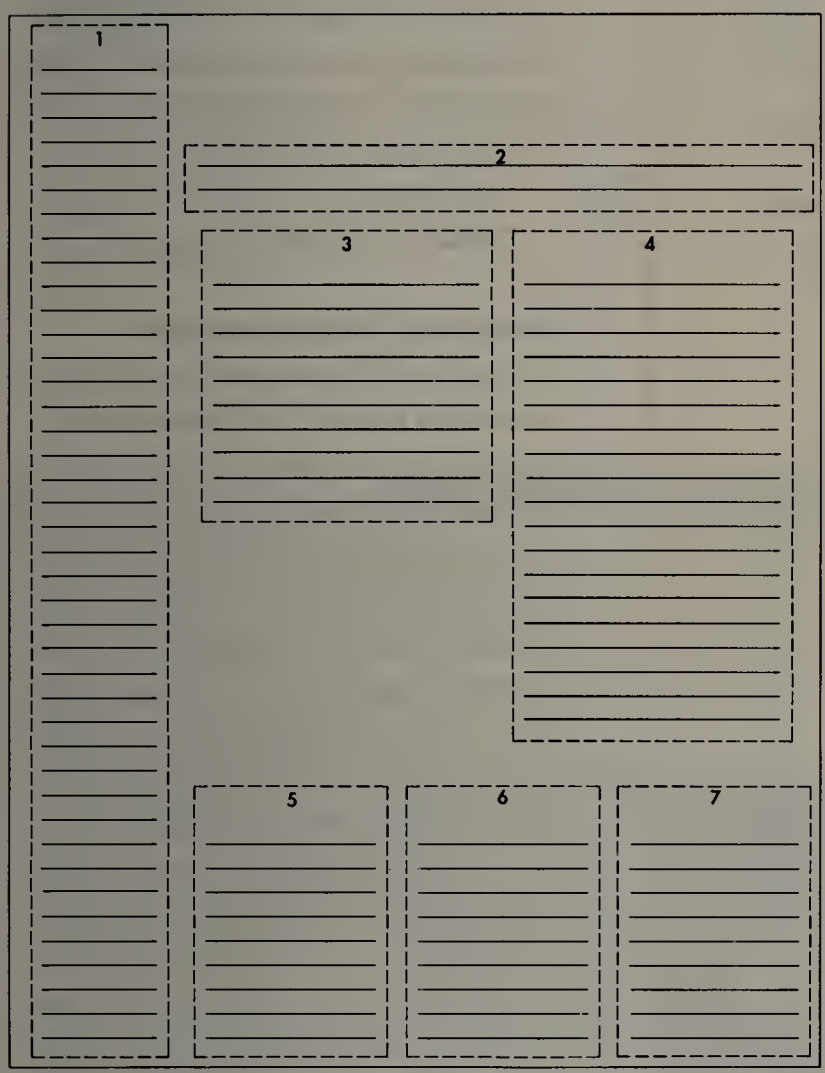
I have $2000 worth of networking software that they will not accept back.

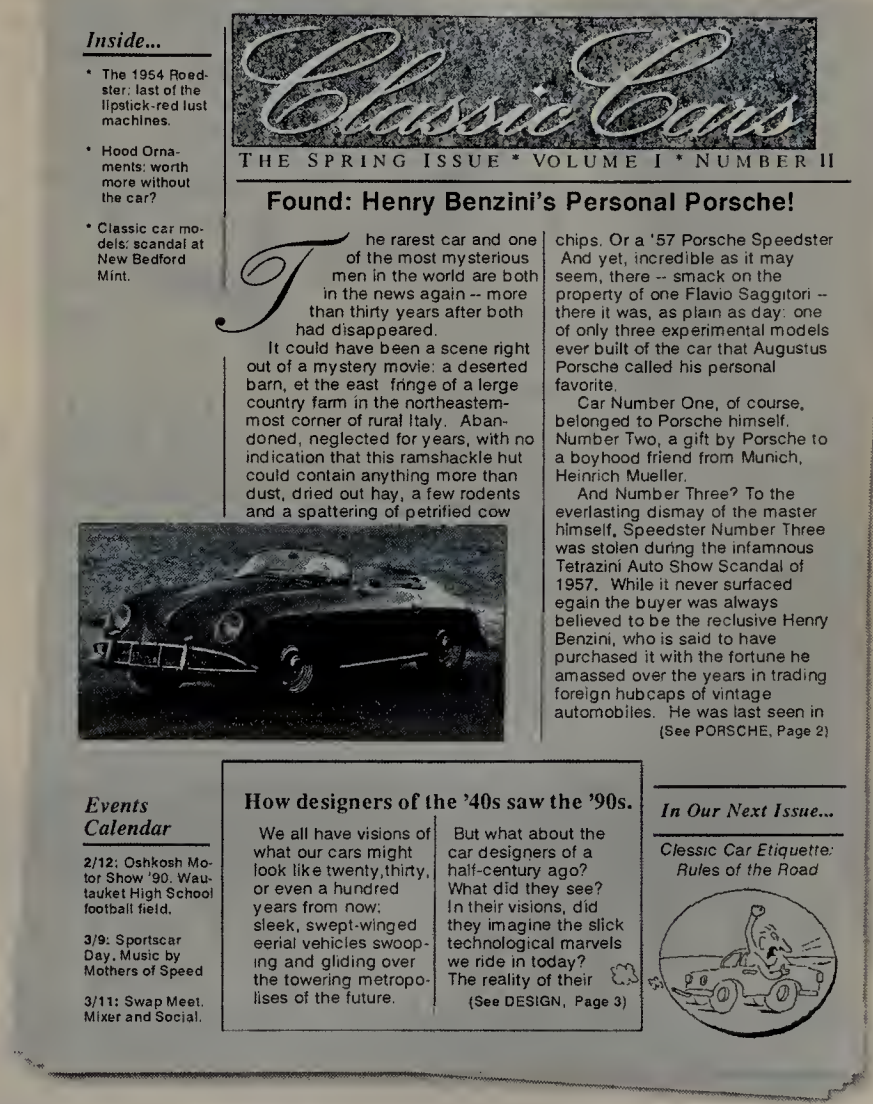
Mike Gaudreau
Auburn Machinery Inc.
Auburn, Maine

Artisoft responds: Our tests indicated that *Filepro 16+* is compatible with the *LANtastic* network operating system. Artisoft provides 30 days of free phone support, beginning with the first call to technical support. Any end user who reports a problem running *LANtastic* (as it is intended to be used) within the initial 30-day support period or during an extended support period is entitled to continued support until the

(continues)

Jumpstart your newsletters.





Inside...

- The 1954 Roadster: last of the lipstick-red lust machines.
- Hood Ornaments: worth more without the car?
- Classic car models: scandal at New Bedford Mint.

Classic Cars

THE SPRING ISSUE * VOLUME I * NUMBER II

Found: Henry Benzini's Personal Porsche!

The rarest car and one of the most mysterious men in the world are both in the news again -- more than thirty years after both had disappeared.

It could have been a scene right out of a mystery movie: a deserted barn, at the east fringe of a large country farm in the northeastern-most corner of rural Italy. Abandoned, neglected for years, with no indication that this ramshackle hut could contain anything more than dust, dried out hay, a few rodents and a spattering of petrified cow chips. Or a '57 Porsche Speedster And yet, incredible as it may seem, there -- smack on the property of one Flavio Saggitori -- there it was, as plain as day: one of only three experimental models ever built of the car that Augustus Porsche called his personal favorite.

Car Number One, of course, belonged to Porsche himself. Number Two, a gift by Porsche to a boyhood friend from Munich, Heinrich Mueller.

And Number Three? To the everlasting dismay of the master himself, Speedster Number Three was stolen during the infamnous Tetrazini Auto Show Scandal of 1957. While it never surfaced again the buyer was always believed to be the reclusive Henry Benzini, who is said to have purchased it with the fortune he amassed over the years in trading foreign hubcaps of vintage automobiles. He was last seen in

(See PORSCHE, Page 2)

Events Calendar

2/12: Oshkosh Motor Show '90. Wautauket High School football field.

3/9: Sportscar Day. Music by Mothers of Speed

3/11: Swap Meet. Mixer and Social.

How designers of the '40s saw the '90s.

We all have visions of what our cars might look like twenty, thirty, or even a hundred years from now; sleek, swept-winged eerial vehicles swooping and gliding over the towering metropolises of the future.

But what about the car designers of a half-century ago? What did they see? In their visions, did they imagine the slick technological marvels we ride in today? The reality of their

(See DESIGN, Page 3)

In Our Next Issue...

Classic Car Etiquette: Rules of the Road

You can go from "Layout Gallery" to finished page in a matter of minutes.

The key to quick and easy, professional-looking newsletters is PFS:® First Publisher™ 3.0 from Software Publishing Corporation. It's the world's best-selling desktop publishing software for the PC. And no wonder.

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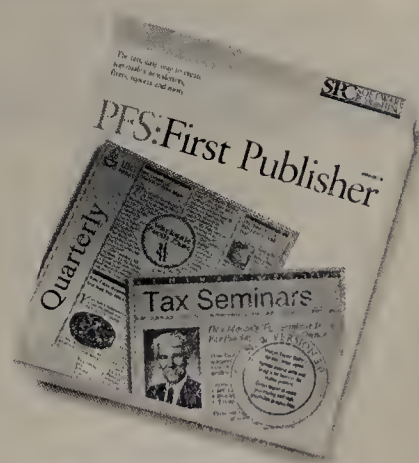

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Circle 162 on reader service card

problem is resolved. If we cannot resolve the problem, the user is entitled to return the product to the dealer or, if it was purchased directly from Artisoft, to us for a full refund.

Upon receipt of Mr. Gaudreau's letter we called him, offering a free year-long technical support policy and promising to work with him on a priority basis until his problem is resolved. If we cannot provide a satisfactory solution, we will give him a full refund.

Sam Henrie
Technical Support Manager

Value Plus, Where Are You?

Consumer Watch receives a surprising number of letters from military personnel stationed overseas who have ordered PC hardware and software through the mail—only to have it show up late, broken, or not at all. Often it's simply a lack of communication between the customer and the supplier. But a recent letter from Air Force Sergeant Thomas Lamson, stationed in Italy, documented outrageous behavior by one supplier.

Lamson sent a money order for $1609 to Value Plus Computers in Canoga Park, California, for the purchase of a computer and monitor. During the course of *40* phone calls, totaling an additional $300 in phone bills, he was told six times that his computer and monitor had already been sent; several other times he was promised that it would be mailed shortly. It never was.

Despite repeated phone messages, no one from Value Plus ever returned our calls. Now the company's phone lines have been disconnected. The company's ads look impressive, promising a 30-day money-back guarantee, but customers should avoid Value Plus.

Think you've gotten a raw deal? Send the details to Consumer Watch, PC World, *501 Second St. #600, San Francisco, CA 94107; CompuServe 74055,412; MCI Mail PC World/179-3813; or 415/442-1891 (fax). We'll investigate your complaint and publish letters with the broadest interest.*

You no longer have to be a pro to communicate. Get CROSSTALK Communicator for only $34.95.

With CROSSTALK Communicator getting on line has never been quicker or easier. And, for a limited time, while supplies last, this $99 package is available for only $34.95. Just return this card with a photocopy of your current asynchronous communications package master disk or the first page of your manual. Any asynchronous package will be accepted, including CROSSTALK. See back of card for further instructions. Limit one per customer.

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By Fax: Fax photocopy of master disk and order form with charge card information to (404) 442-4366.

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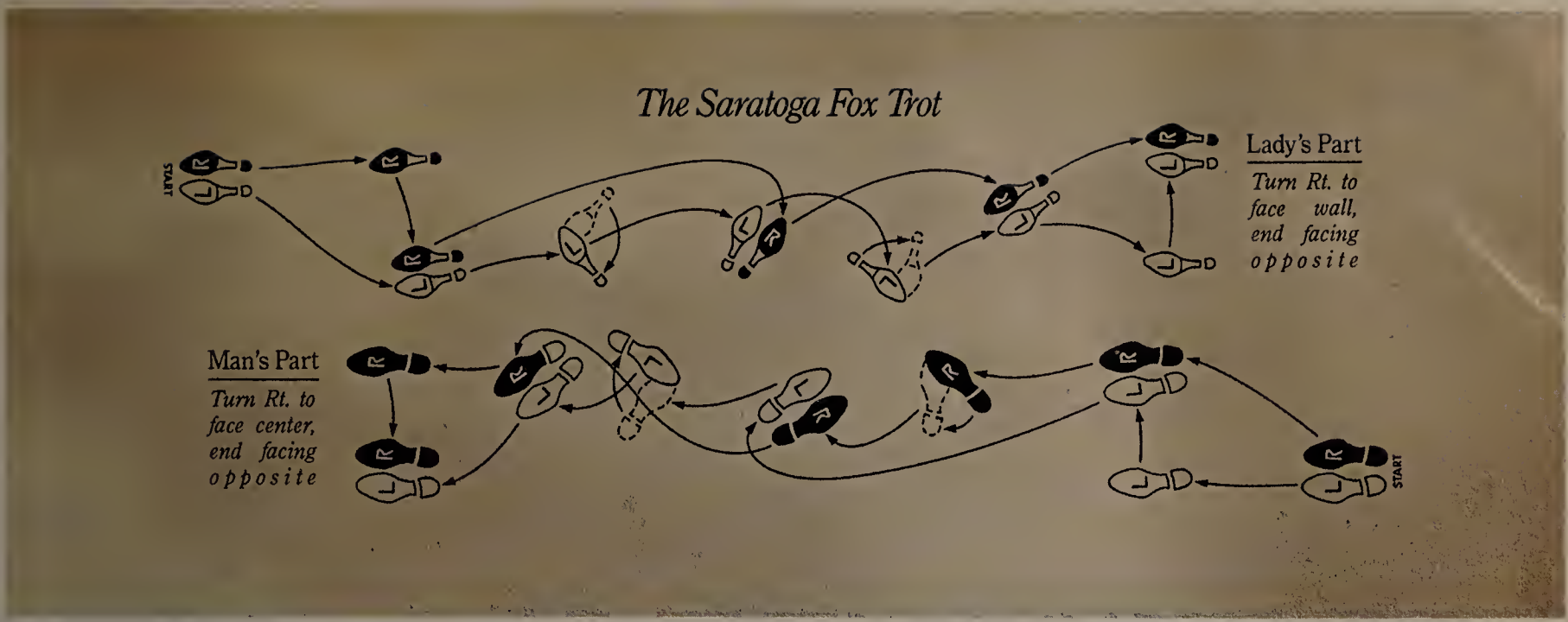
By Phone: Call 1-800-289-4DCA with order information 8 a.m. to 9 p.m. EST Monday-Thursday, 8 a.m. to 6 p.m. EST Fridays.

Shipments will be by ground carrier. Please allow suitable time for delivery.

DCA®



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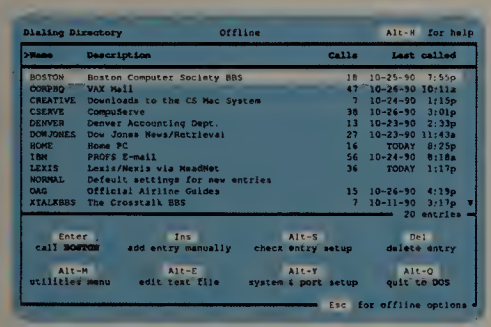
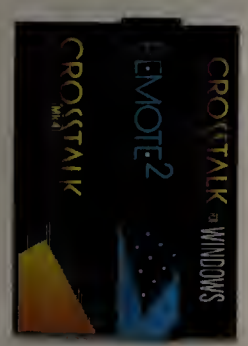


Unlimited connections are one step away with our dialing directory.

Plus CROSSTALK Communicator gives you all the necessary features for sophisticated communications.



These products are an economical upgrade away.

Like emulation of ANSI color graphics, Televideo® 900 series, IBM® 3101, DEC VT™ 52, VT102, VT220, and VT320 terminals. And support for block mode, printing, wide screens and other various advanced features.

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There's also an economical upgrade path when you need communications products for networks, remote computing and Windows.

Best of all, CROSSTALK Communicator is a great deal at only $99. And, for a limited time, you can trade in any asynchronous communications package, regardless of who you bought it from initially, and receive CROSSTALK Communicator for just $34.95.* To order, call us at 1-800-289-4DCA ext. 67C. Could anything be simpler?

DCA

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Circle 62 on reader service card

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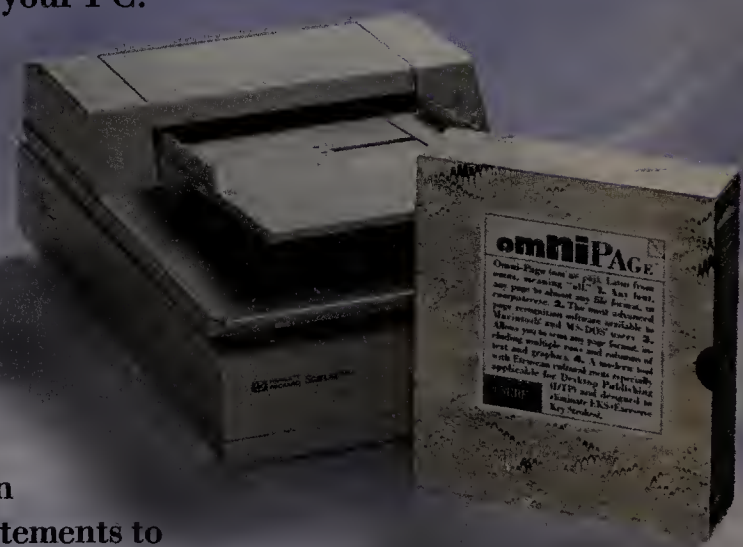

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Circle 77 on reader service card

Edited by ERIC BENDER

Windows, Graphics, CAD Packages Benefit

IBM Launches Successor to Popular VGA

XGA to Be Open High-Resolution Graphics Standard

COVER STORY

Widely cloned and hugely popular, IBM's VGA gives PCs satisfactory graphics either free with the system or for as little as $100 on the street. But if you're running multiple *Windows* packages, *AutoCAD*, or any of the other applications that get more graphic by the year, you probably want greater resolution, more colors, and snappier screen performance.

IBM, Texas Instruments, and other suppliers have been tussling for three years over how to take PCs past VGA's 640-by-480-pixel resolution. Now IBM aims to set the standard straight with its Extended Graphics Array (XGA).

First appearing in IBM's new 486 PS/2s (see the preview in this issue), XGA is a VGA superset capable of quick performance at up to 1024 by 768 pixels and 256 colors. It's optimized for graphic environments such as *Windows*.

Even more important, IBM is committed to publishing hardware details so that other vendors will rally around XGA. And by building XGA into the motherboard of the Model 90 desktop, IBM has sent a clear signal that VGA's successor has arrived.

"It's a good next step, and I'm glad it's coming from IBM," says Paul Grayson, chairman of Micrografx in Richardson, Texas. "IBM has been able to set the PC graphics standard at each turn."

If IBM puts XGA even on midpriced PS/2s, "and if it's a good architecture that runs *Windows* fast, it will have a profound impact," suggests Andrew Fischer, vice president for product development at Hercules Computer Technology in Berkeley, California.

The XGA adapter in IBM's 486 machines runs VGA software faster and displays 1024 by 768 resolution with up to 256 colors.

JOHN GREENLEIGH

Avoiding Past Mistakes

Of course, this is IBM's second try at moving the industry beyond VGA. The 8514/A adapter introduced with VGA in 1987 offered XGA's resolution and color mix. But IBM didn't publish the specifications (other vendors are only now starting to offer compatible boards). Also, 8514/A was clumsier and slower than XGA and worked only with interlaced monitors, whose flickering bothers users.

The result: "8514/A is still a very expensive proposition," says Michel Castro, an analyst with Dataquest in San Jose, California, and very little software has been developed for it.

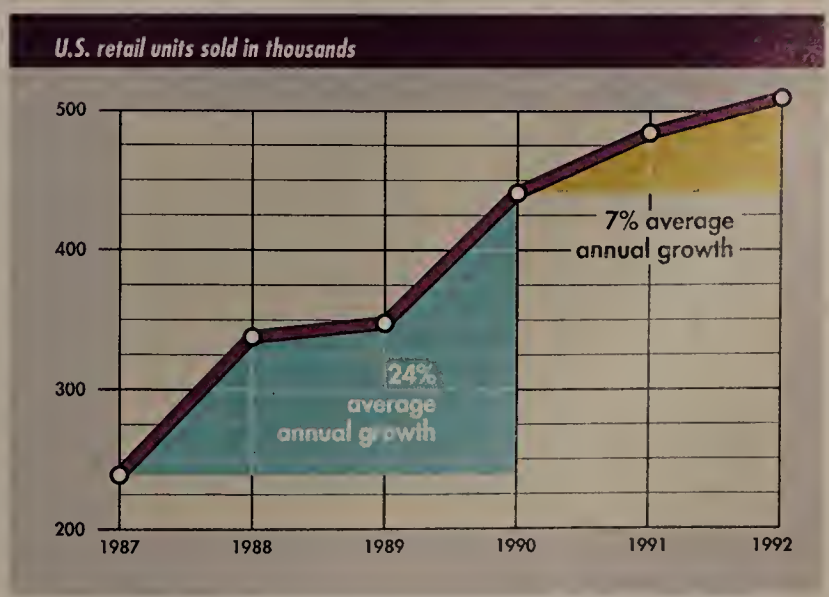
Texas Instruments beat IBM to market in 1986 with its 34010 graphics chip. An architecture that can support resolutions and color combinations far beyond the capabilities of 8514/A, the 34010 was adopted by dozens of board manufacturers and is now in its second generation. But TI has also had difficulty rounding up software developers to support its hardware.

Meanwhile, board and monitor suppliers got together to push VGA to 800 by 600 resolution—"super VGA." Many also now offer 1024 by 768 modes, although speed, compatibility, and support problems have multiplied.

XGA will break this logjam of conflicting "standards." In time, rival vendors should drive the cost of an XGA board far below IBM's $1095 introductory price.

Later, another XGA benefit —display of 65,536 colors at VGA resolution—will allow striking images that add to the appeal of multimedia software. "Humans are very sensitive to graphics quality," Grayson notes. "We need to get close as possible to the level of quality the human eye can see." —*E. B.*

Desktop Publishing Slows



Dataquest projects that the desktop publishing market will grow at a much slower rate, due to both market saturation and greater competition from word processing packages.

Service Issues Claiming Center Stage

Customers Want Direct Phone Support From Vendors

For years customers have demanded responsive, high-quality technical support and service for their PCs, but these cries fell on deaf ears. Increasingly, however, computer makers are getting the message and instituting new support programs—or touting existing programs—in the quest for customer loyalty.

"As sales slow down, we're seeing more and more emphasis on service and support," says Bruce Stephen, analyst with International Data Corporation in Framingham, Massachusetts. "At the low end, it gives companies a way of distinguishing themselves." At the high end, where products are dedicated to mission-critical–type applications, "post-sale support is a requirement, not a luxury," Stephen says.

Lorraine Junge, a microcomputer specialist with a Southern California corporation, has noticed big changes in support. "Vendors are beginning to realize that if they want to be here for round two, when corporations start replacing old architecture, they had better provide more [service] than they have in the past."

Heeding the call, AST Research has beefed up its direct support options, converting to a toll-free technical support line and extending its hours of operation.

The Irvine, California, PC maker sells only through dealers and resellers and has traditionally relied on these two groups to handle most technical support questions, while offering its own hot line as a backup service. But customers want the option of talking to the vendor directly—without paying for the call, says Jim Schraith, vice president of sales and service for AST. He describes the enhanced direct support options as a "safety net" for customers unhappy with dealer-provided service.

Rather Switch Than Fight

Customers need that safety-net option, insists Joe Dulworth, a systems analyst with Williamson-Dickie, a clothing manufacturer in Fort Worth, Texas. Dulworth used to buy only IBM and Compaq systems because of their reliability, but now he's considering other vendors who promise direct access to technical support personnel.

Likewise, Chuck Davis, vice president of Computech Systems, an in-house purchasing and support organization for The Equity Group in Chicago, added Dell Computer, the large mail-order firm, to IBM and Compaq on his approved vendor list. "The price is what caught our attention, but the service and support is what made us stay," says Davis.

Dell, which built its reputation around comprehensive support policies, recently extended the hours for its technical support line, added a fax service for customers who need technical documentation, and began offering training and service for customer in-house support staffs.

Demanding Direct Access

Davis, Junge, and other users say that direct access is now a criterion for doing business with a PC manufacturer. Junge believes field service engineers (like those employed by major PC manufacturers at their regional sales offices) can provide the assistance she needs to solve even complex problems.

But others are not satisfied with this option. "We need to be able to talk to someone [at the manufacturer]," says Davis. His firm switched to Dell because "Compaq wouldn't talk to its own grandmother."

"Those who wish to stay in business had better set up their own support lines. It's as simple as that," says Seymour Merrin, president of Merrin Information Services in Palo Alto, California. "And Compaq is no exception. Customer patience is wearing thin."

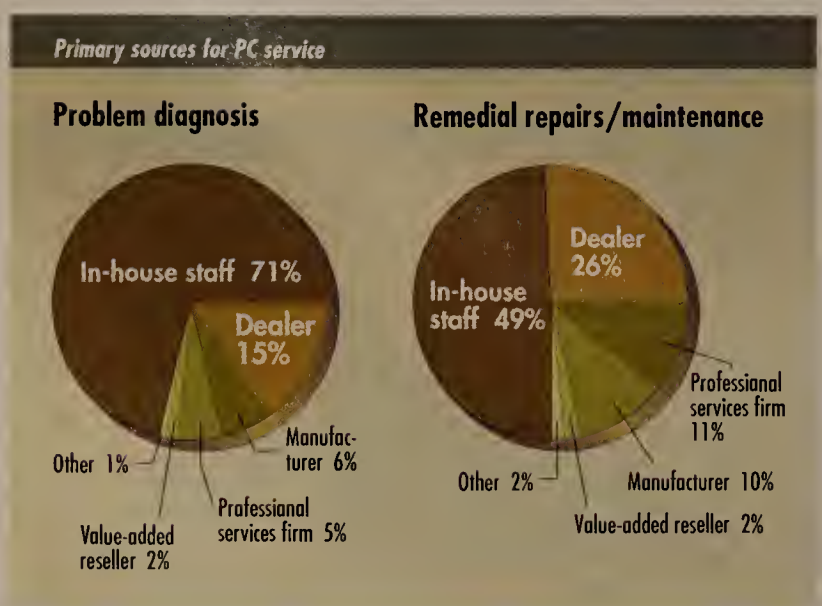
MARTHA LEONARD

Dell Computer's "service and support is what made us stay," says Computech's Chuck Davis.

But Compaq continues its commitment to work through dealers and is skeptical of competitors' support claims. "Some manufacturers' hot lines are a joke," asserts Ross Cooley, vice president of service and support. "We believe the dealer channel will rise to the occasion so long as manufacturers don't block their opportunities."

If a user can't get a problem resolved through the dealer, the local Compaq sales office "is more than happy to take the problem and get the [resolution] process started." But the dealer will always be included in that process. "Otherwise," says Cooley, "the dealer never learns." —*Roberta Furger*

Where Do You Turn for Hardware Support?



Among 500 Fortune 1000 companies studied by the Ledgeway Group, dealers rank second behind in-house staffs as a resource for diagnosing hardware problems and making minor repairs. However, many customers say that dealer support is no longer adequate for their needs.

Printer Sharing Solutions

8 Parallel and 2 Serial Ports Now Available With New SL

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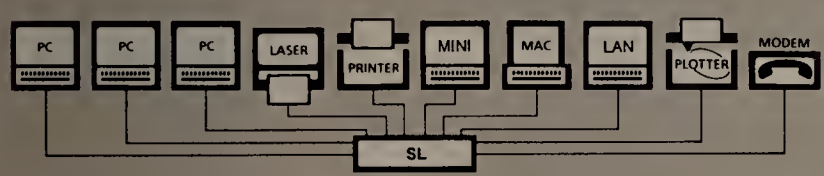

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Circle 215 on reader service card

IBM Spreads Software Bets

Windows Keeps Rolling Ahead

Whenever customers think they've nailed down a long-term strategy for software investment, another industry "partnership" pops up with yet another PC environment. IBM is introducing about one a year.

Called Patriot Partners and unveiled this past fall, the latest venture is a joint effort of IBM and Metaphor Computer Systems of Mountain View, California. Metaphor's object-oriented corporate-decision support system has won raves for its ease of use and analytical power.

The goal of Patriot Partners is to create a combination graphical user interface and object-oriented platform that will let developers port applications easily between OS/2, UNIX, and IBM's UNIX-based AIX. Not scheduled to ship until 1993, the new platform will accommodate emerging technologies that current environments are ill-equipped to handle, such as expert systems.

David Liddle, president of both Patriot Partners and Metaphor, hopes to bring the power of object-oriented techniques to the PC mainstream. "None of that yet exists in high-volume, widely available environments," he says. Additionally, he notes, future platforms must easily meld audio, full-motion video, animation, and other components.

But will hard-pressed PC developers put aside funds for yet another platform?

This is a "well-funded and serious attempt to do what has not been possible before," says Will Fastie, publisher of *The Fastie Report* in Baltimore. Like many others, however, Fastie doubts that most developers will rush to invest.

Windows on the World

The dominant environment of the nineties will be *Windows*, Fastie concludes. However brilliant the Patriot Partners software, "tens of millions of PCs will be running *Windows* before the first Patriot system sees the light of day."

"For software developers, *Windows* is the only game in town," agrees InfoCorp analyst Bill Higgs. "New applications will be appearing on *Windows* first, then on OS/2 Presentation Manager as a sort of afterthought."

Applications written for OS/2 2.0 or later will be Patriot compatible. Moreover, Microsoft has promised that *Windows* packages will run with a small performance hit under OS/2 2.0 and run well under OS/2 3.0. That means *Windows* investments should be protected as well (although Higgs questions how painless this upgrade path will be).

Liddle acknowledges that most developers have jumped on the *Windows* bandwagon. "For the spreadsheets and word processors that now dominate the market, there is no reason to move to another platform," he says. But he emphasizes that today's applications represent only a fraction of the ways software can be applied to business problems.

Users: Call If You Find Work

Most customers say they are indifferent to this debate about the future. "PC users are interested in applications, not operating environments," says Larry Heyl, a small-business consultant in Jonesboro, Arkansas. "Just because someone has a better idea doesn't mean you want to throw away what you already have," adds Brian Moura, assistant city manager of San Carlos, California.

However, *Windows* may be facing a backlash of sorts as users find that Microsoft was overly optimistic about its ease of use and speed. That opens up opportunities for ambitious new efforts like Patriot.

Still, IBM is by no means putting all its eggs in the Patriot basket. Big Blue has been on a buying spree of sorts, distributing resources to many often-conflicting efforts. These include various OS/2 flavors, the massive in-house *OfficeVision* effort, Steve Jobs's NextStep object-oriented system software, and Go Corporation's gesture-based environment—everything, in short, but *Windows*. —*Alice LaPlante*

The Developer's Choice

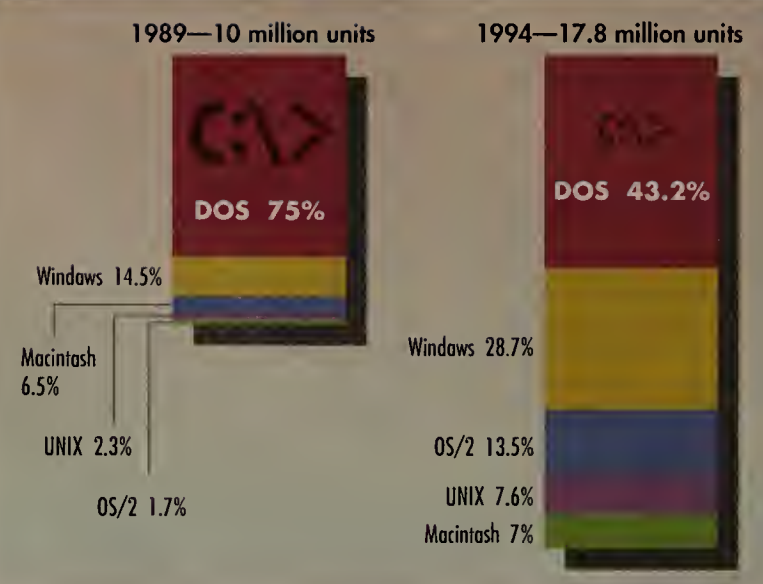
How developers see PC environments

	PROS	CONS
DOS	Immense installed base of machines that can run character-based applications immediately.	Users seeking graphic environments.
Windows	Huge potential market, users wanting to move to graphic environment.	Many machines must be upgraded first, some technical limitations.
OS/2	Still often seen as next corporate environment, technically advanced.	Very small current market, little hope in next few years for rapid growth.
UNIX	Scientific/workstation market is growing rapidly.	UNIX gurus still haven't convinced business market of benefits.
Macintosh	Established, loyal market.	Only 7 percent of current and projected users will buy.

As the PC market fragments, software firms face tough choices on where to place development bets—choices that will dictate what customers can buy in years ahead.

DOS Yielding Dominance

U.S. market shares for PC environments



By 1994, a far smaller percentage of personal computers will be delivered with DOS only, predicts International Data Corporation. Windows' market share will double.

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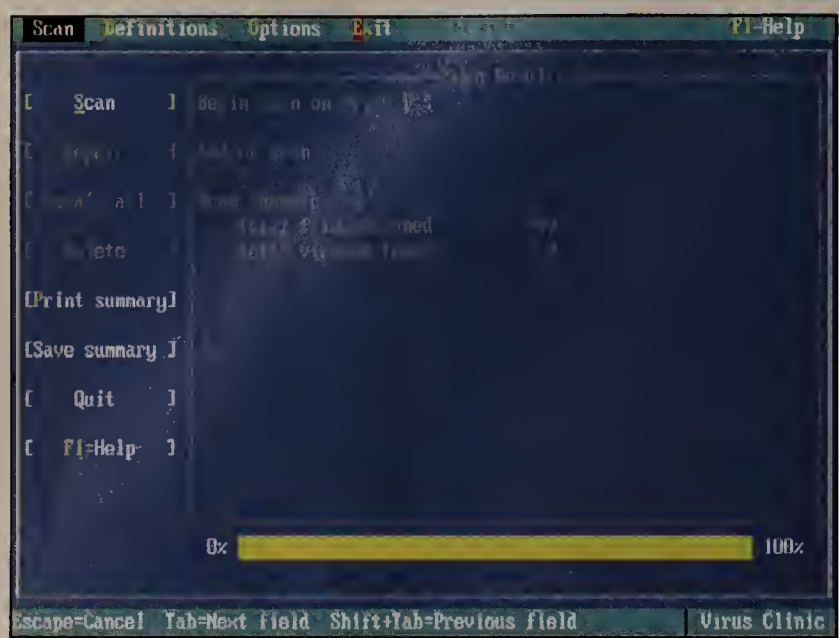
Circle 3 on reader service card

Users Seek Defenses Against Viral Threat

Protective Packages Seek to Keep Up



Norton AntiVirus and some other vaccine packages post a memory-resident guard and scan disks for known viruses.

This is no longer just a bad dream: Computer viruses and other destructive software pose a real and present danger to an increasing number of users, who are girding their computers with a variety of protective programs.

Every corporate micro manager *PC World* interviewed had seen minor viral outbreaks, although none would admit suffering major data losses. PC managers don't like to talk about the problem, for fear of public embarrassment.

On the other hand, viral-security consultants are full of tales that border on the apocalyptic. "We've gotten calls of 'Oh, my gosh, we've lost 280 nodes of our 300 node network since eight this morning!'" says Peter Tippett, president of antiviral software vendor Certus International in Cleveland, Ohio. "I know of many major corporations that have been severely damaged by viruses," says Steve Gibson, president of Gibson Research in Irvine, California. But Gibson and Tippett both say that the victims keep those incidents secret.

Viruses are usually introduced into companies through computer repair and system purchases, notes John McAffee, a security consultant in Santa Clara, California. When a virus hits, a computer technician usually runs a diagnostic program on the affected PCs. That infects the diagnostic program, which subsequently infects other PCs. Horror stories also abound of new PCs whose hard disks are unknowingly installed with software from virus-carrying floppy disks.

"Another threat is from demonstration software," says McAffee. "A salesman may give five or six software demonstrations a day. If his demo disk is infected, he'll infect every company he visits."

Customer Responses Vary

Many companies literally do nothing to protect themselves from viruses. Others deploy antiviral software and train their employees in "PC hygiene." Some workers are prohibited from bringing in software from home PCs, or at least are required to scan the software for viruses before it's run on a company PC. Many companies deploy "virus SWAT teams" armed with antiviral tools. A frightened few, says McAffee, are overreacting wildly, spending millions to build bank vault–like "virus isolation rooms" for sequestering sick PCs.

An information engineer at an aerospace firm that has weathered numerous viral outbreaks says that his firm mandates PC hygiene courses for all employees. It also spends $100,000 annually for memory-resident antiviral software for every PC, and has a lab with full-time technicians who screen every piece of software that comes in the door.

Investment Planning Services of Fairfax, Virginia, has tightened security on its Novell network, says network engineer Daryl Caudill, so that users "can execute software on the network but can't modify it." IPS also insists that employees put write-protect labels on floppy disks before taking them to the clients' offices.

A micro manager at a Big Six accounting firm that suffered one minor outbreak says that built-in hardware and software safeguards against viruses figure prominently in plans for the firm's new 2500-plus-node network.

Software Solutions?

Veteran antiviral packages like Certus's are being joined by products from larger firms, such as Symantec's *Norton AntiVirus*. Experts say that while there is no perfect defense, these packages can be quite effective. The two kinds of vaccine software—scanning programs and memory-resident programs—are sometimes combined, as in *Norton AntiVirus*.

Scanning software such as McAffee's *Scan* checks a program or disk for occurrences of known viruses. The better programs will search for 200 or more viruses and are updated as often as every few weeks.

But "scan programs operate after the virus has already copied itself," points out William Hugh Murray, a Wilton, Connecticut, security consultant to Deloitte & Touche. "I want something that operates early." Murray advocates memory-resident programs, such as Certus's *Resident*, which check out each application before it loads and prevent the execution of unauthorized code. —*Judy Heim*

Has Your Firm Been Hit by Viruses?

J. OTTO SIEBOLD

Certus International, which sells antiviral software, polled more than a thousand U.S. corporations last year on viruses and other destructive software. A majority of firms had suffered at least one viral attack.

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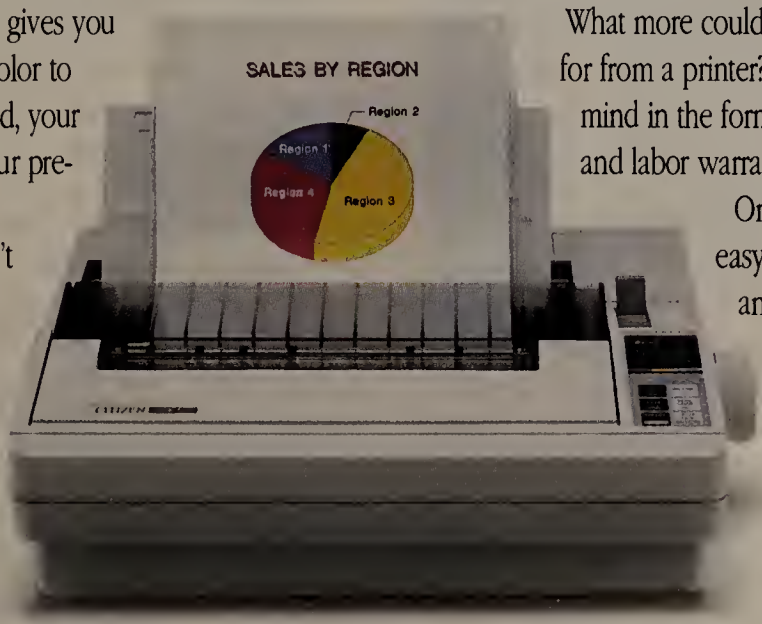

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CITIZEN

Circle 91 on reader service card

Mail Order Keeps Posting Sales Gains

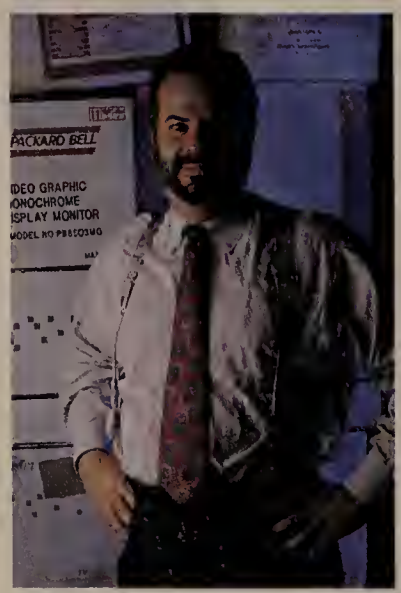
Users Recommend Buying From Established Players

A tenth of all PC software and hardware arrives by mail, estimates BIS CAP International of Norwell, Massachusetts. Customers say mail order is a great way to buy—*if* you know exactly what you want and how to use it.

"We buy almost everything through the mail," says Larry Schunk, director of management information systems for Cerro Gordo County, Iowa. County rules require Schunk to buy locally at up to a 10 percent premium. But he still buys mail order for 60 percent discounts on items like high-density floppies. "Retail prices are outrageous," he says.

Historically, price has been mail order's appeal. But the established players also get kudos for better service.

Mark Zuckerman, president of Managing Information Retrieval Associates in Roosevelt, New Jersey, couldn't find the network version of some software at local stores. He called Computer Discount Warehouse (CDW) in Northbrook, Illinois. The salesperson asked how he was setting up the network, says Zuckerman. "Then he came up with a better equipment list, better delivery time, and substantially better price."



BRAD BOWER

Managing Information's Mark Zuckerman found mail-order bargains for his network.

Other buyers laud the speed at which even unusual goods are delivered. "The vast majority of items we can purchase through PC Connection," says Jane Husson, buyer for Union Carbide in South Charleston, West Virginia. "If I call Monday before 4 p.m., by Wednesday they're usually sitting here."

CDW president Mike Krazny says his seven-year-old firm enjoys 70 percent repeat business. Thanks to high sales volume and modest fixed expenses, Krazny says CDW's profit margins are several times the 2 percent to 6 percent mail-order average.

Profitability and sheer sales clout is bringing mail-order companies respect from large vendors. "I didn't think this would ever happen, but a little over a year ago we became an authorized Lotus reseller," says David Hall, executive vice president of eight-year-old PC Connection of Marlow, New Hampshire.

But Tread With Care

However, some very shadowy firms also sell by mail; they set up shop just by buying an ad, and they go out of business just as quickly. PC companies account for a disproportionate number of complaints to the Direct Marketing Association, says Lorna Christie, vice president for ethics and consumer affairs for the New York trade group.

Standard consumer warnings apply—starting with the need to check the company's reputation. Look for ads in old issues of PC publications, suggests PC Connection's Hall; the DMA advises calling the Better Business Bureau.

Shop for low quotes, but be wary of prices way below market, customers say. Established vendors are usually competitive; entrants who break in with extreme discounts need deep pockets and usually lack them. Pay with a credit card rather than cash.

Make sure you're getting "fresh" parts still under manufacturer's warranty. Ask if there are restocking fees on returns, which may be 25 percent of the sale price, and about other return policies for hardware that doesn't work or just isn't right. Software return policies can be even more stringent. PC Connection takes back unopened software within 30 days, CDW within 15. If you've opened it, odds are you're stuck with it.

In general, "you have to know what you're talking about," says one user who buys parts for PC repair technicians at a large university. Installing the wrong parts sent by a mail-order house crashed university networks and caused enough havoc to make money-back guarantees meaningless, she cautions.

If trouble strikes, write *PC World*'s *Consumer Watch* or the DMA's Mail Order Action Line, 6 E. 43rd Street, New York, NY 10017. The DMA will contact the seller and, in cases of flagrant misconduct, will send the case to regulators. "Ninety-five percent of the problems are resolved to the customer's satisfaction," Christie says. —*Mark Henricks*

STEVE PAYNE

Union Carbide's Jane Husson finds that PC Connection can deliver almost all she needs.

Alice LaPlante is a freelance writer in Palo Alto, California.

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Tracing	(50)	( )	Very Good	Very Good	Very Good	Excellent	Very Good	Satisfactory	Poor	Good
Import/export	(50)	( )	Satisfactory	Satisfactory	Very Good	Very Good	Good	Good	Satisfactory	Very Good
Speed	(50)	( )	Satisfactory	Very Good	Excellent	Good	Excellent	Satisfactory	Good	Good
Output quality	(100)	( )	Good	Good	Excellent	Very Good	Excellent	Very Good	Satisfactory	Satisfactory
Documentation	(100)	( )	Very Good	Good	Very Good	Excellent	Very Good	Good	Satisfactory	Satisfactory
Ease of learning	(100)	( )	Very Good	Good	Excellent	Very Good	Satisfactory	Good	Very Good	Good
Ease of use	(125)	( )	Satisfactory	Very Good	Very Good	Very Good	Satisfactory	Very Good	Satisfactory	Very Good
Error handling	(75)	( )	Good	Poor	Good	Good	Good	Very Good	Good	Very Good
Support										
Support policies	(50)	( )	Satisfactory	Good	Good	Very Good	Satisfactory	Satisfactory	Satisfactory	Good
Technical support	(50)	( )	Satisfactory	Very Good	Very Good	Very Good	Good	Good	Very Good	Very Good
Value	(100)	( )	Satisfactory	Good	Excellent	Very Good	Very Good	Very Good	Satisfactory	Very Good
Final scores			**6.0**	**6.4**	**8.2**	**7.7**	**6.9**	**6.8**	**5.4**	**6.5**
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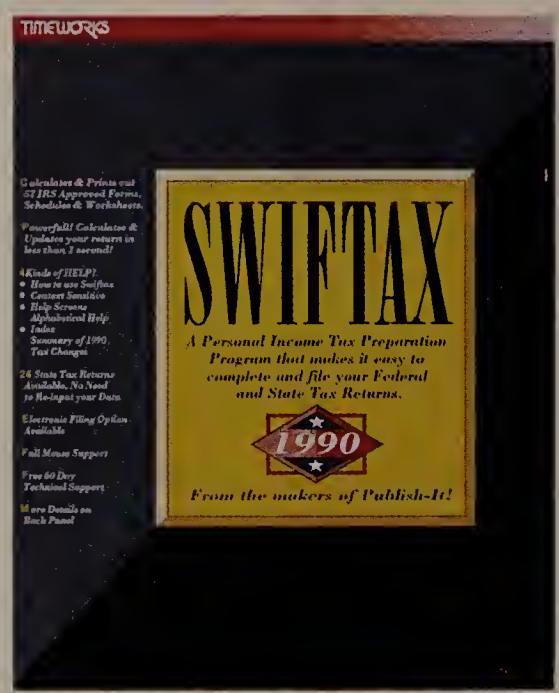

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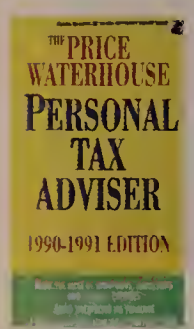

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PW191S

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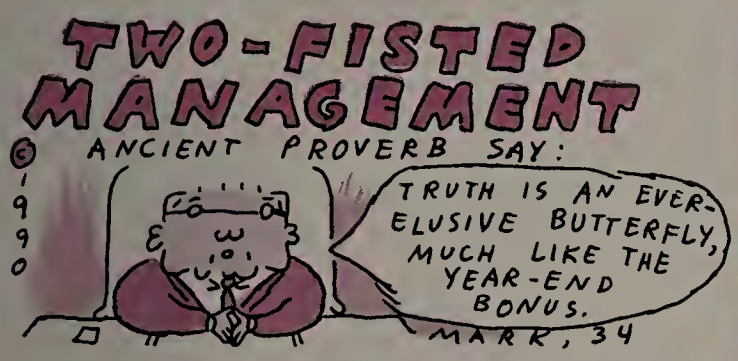
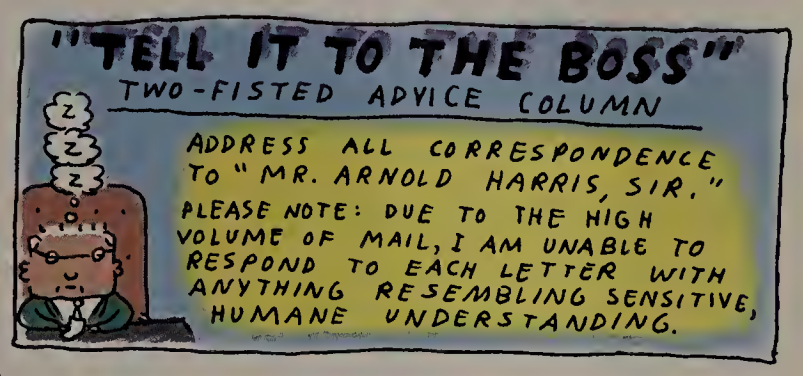
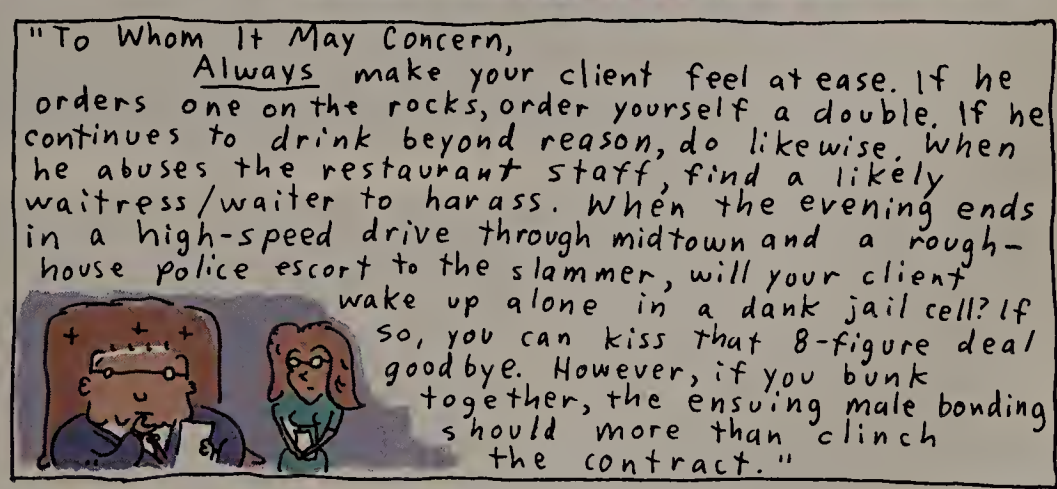
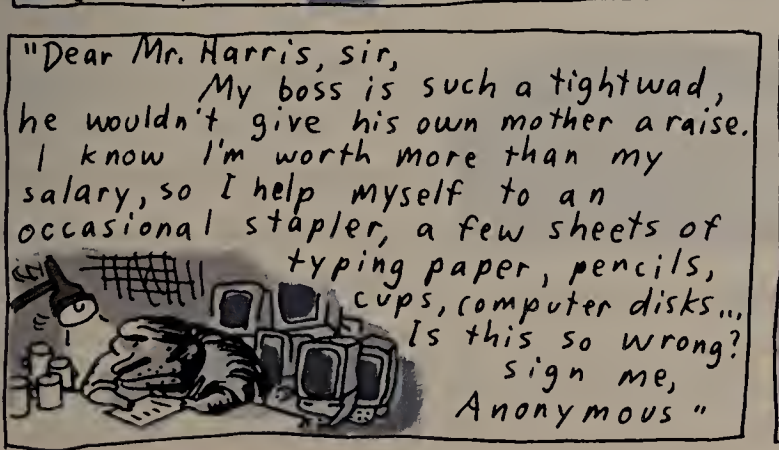
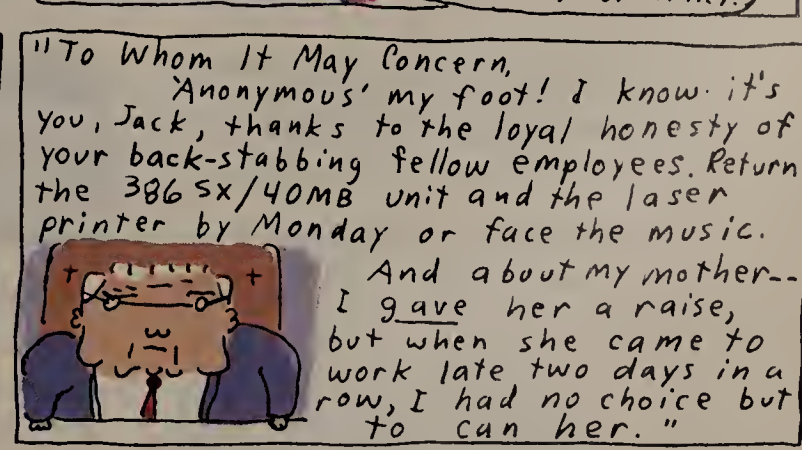


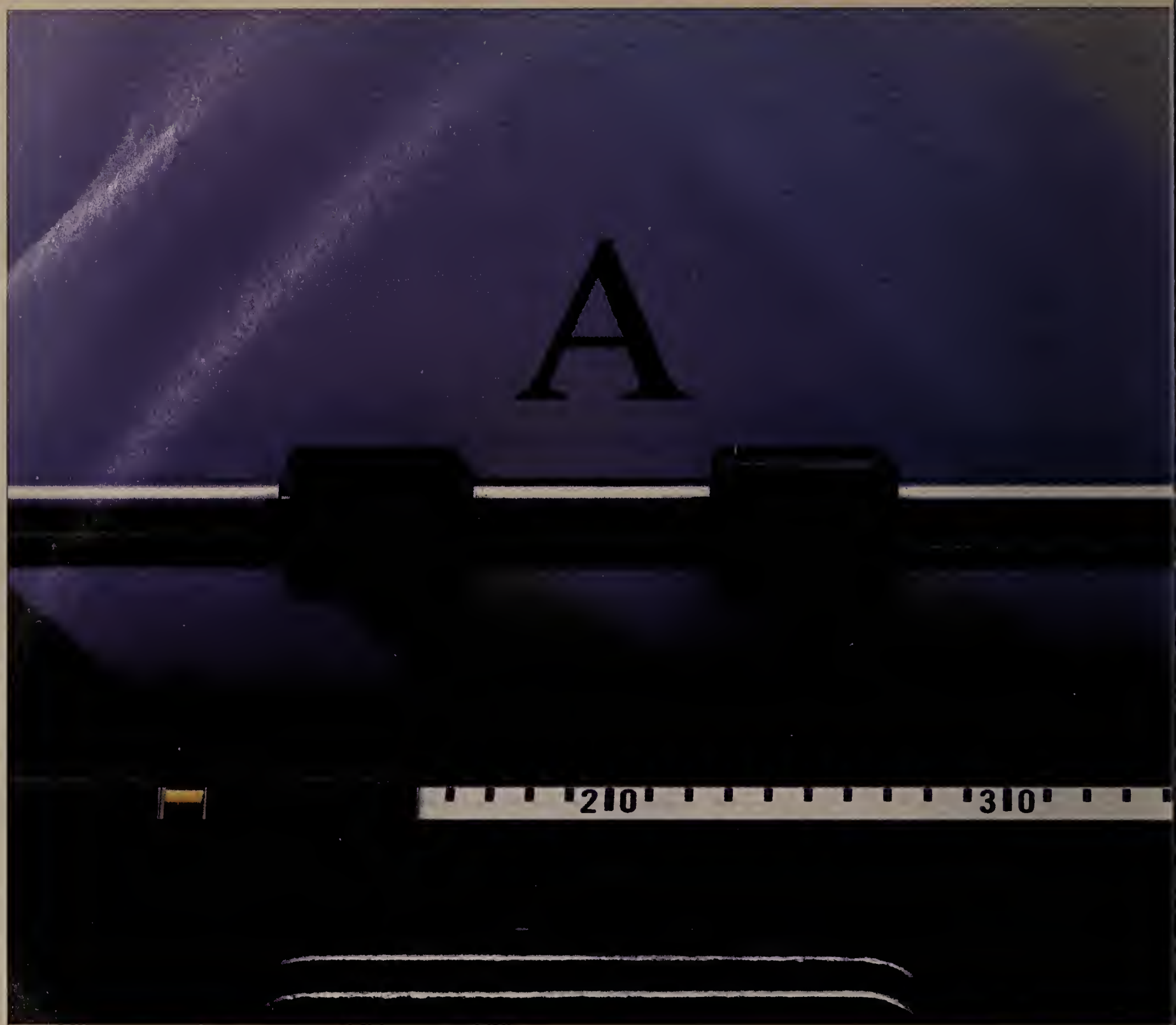








MARK MAREK



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Eric Bender

COVER STORY

IBM's PS/2 XP 486 line finally pulls IBM abreast with its competition. This freshly christened, four-machine fleet—two Model 90 desktops and two Model 95 towers—offers 25- and 33-MHz 486 configurations and easily upgradable CPUs. Better yet, these flagship 486s boast a capacity for memory and drives that previous PS/2s can't touch.

The splashiest XP extra, however, is the next-generation graphics hardware that comes with every system. The Extended Graphics Array (XGA) is built into all Model 90 motherboards and comes standard as an expansion board with all Model 95 towers. Like IBM's 8514/A board, XGA offers 1024 by 768 resolution with 256 colors, but IBM claims its performance is far superior. A special mode enables XGA to display up to 65,536 colors at standard VGA resolution, promising striking screen shows for multimedia and other upcoming applications (see the sidebar "XGA: Passing Tougher Screen Tests").

At the same time, IBM is fighting *Windows* mania with OS/2 1.3, a slimmer, faster version that offers more advanced multitasking than *Windows* and may actually require about the same amount of memory. OS/2 1.3 is the first major PC environment to come with fonts that look almost the same on screen as they do on hard copy. Nonetheless, many customers will see this release as a placeholder for the full 32-bit OS/2 2.0 arriving early in 1991, which promises better performance and the ability to juggle multiple DOS applications.

The XP Performance Push

Like all 486s, XPs can handle tasks that eat ordinary PCs for lunch—manipulating big CAD drawings, multitasking under OS/2, running multiuser data base applications, and other hairy jobs. The tower units offer a serverlike complement of drive bays and slots, but otherwise the tower and desktop configurations are internally nearly identical. Prices range from $12,495 to $17,745.

These machines leave relatively few questions unanswered about IBM's view of PC hardware for the nineties,

SNAPSHOT

IBM PS/2 Models 90 XP 486 and 95 XP 486

IBM's desktop and tower 486 machines offer expansion space galore plus snazzy XGA graphics.

KEY FEATURES

- **Upgradable 25- and 33-MHz 486 CPUs**
- **Optional 256K secondary cache**
- **Up to 32MB of CPU-speed RAM**
- **Model 90 desktop holds five drives (up to 960MB storage) and has three available 32-bit Micro Channel slots**
- **Model 95 tower holds seven drives (up to 1.6GB storage) and has six available 32-bit Micro Channel slots**

AVAILABILITY

Immediate

PRICING

$12,495 to $16,695 for Model 90 desktop, $14,145 to $17,745 for Model 95 tower

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starting with the removable CPU board that sits in a Micro Channel slot. This board holds the 486, memory controller, and related circuitry, making it easier to swap up to more powerful CPUs—such as the forthcoming 50-MHz 486—and to tap Micro Channel enhancements. The upgrade from 25 to 33 MHz costs $2500.

All XP models come with 4MB of CPU-speed memory, which can be expanded to 32MB. The standard memory includes 70ns chips, so the upgrade from 25 to 33 MHz doesn't require new chips or added wait states. You upgrade with pairs of 1MB, 2MB, or 4MB single in-line memory modules (SIMMs). Eventually, IBM plans to supply 8MB SIMMs, allowing a total of 64MB of CPU-speed memory.

The memory architecture, which gives the 486 interleaved access to two 32-bit memory banks, promises solid performance. As a $1995 option, IBM also offers a 256K secondary memory cache designed to speed multiuser and multitasking applications. Most competing boxes either have a hardwired secondary cache or can't be upgraded. IBM's flexible scheme ensures that if you don't need the extra cache, you don't pay for it.

Among other design tweaks, XPs store part of the BIOS on disk and copy it into RAM, aiding both performance and future upgrades. Throughput on serial ports has been boosted from 19,200 bits per second to a potential 345,000 bits per second to help the machines work with high-speed modems. Parallel and mouse ports are standard.

Unlike many 486 systems, XPs have mass storage options that complement CPU power. All the systems take advantage of IBM's 32-bit SCSI bus-master controller, which is built in and handles up to seven SCSI drives—enough for multiple gigabytes of storage. IBM also offers a high-performance 2.3GB tape backup unit to match, for $6550.

The most powerful PS/2, the Model 95 XP comes with six available 32-bit slots and space for five internal hard disks. Like the Model 90 it offers a bus-master SCSI controller, an upgradable CPU board, and an optional 256K cache. IBM intends to make the Model 95 the platform for the upcoming multiprocessor "super servers."

JOHN GREENLEIGH

Model 90: Determined Desktop

The Model 90 is a little bulkier than the 386-based Model 70, at 17¼ inches wide, 16⅞ inches deep, and 5½ inches high. With XGA on the system board, the Model 90 offers three available 32-bit Micro Channel slots. One of the slots has a special pass-through extension that hooks into XGA, accommodating such futuristic graphics options as IBM's M-Motion multimedia board.

The desktop holds up to five storage devices. Two 5¼-inch bays can hold CD ROM drives, tape backup units, or even an optional half-height 5¼-inch floppy drive—a first for PS/2s. Three bays accommodate 17ms 80MB, 16ms 160MB, or 12.5ms 320MB SCSI drives, so that you can get up to 960MB of storage internally with IBM devices or more with devices from third-party suppliers.

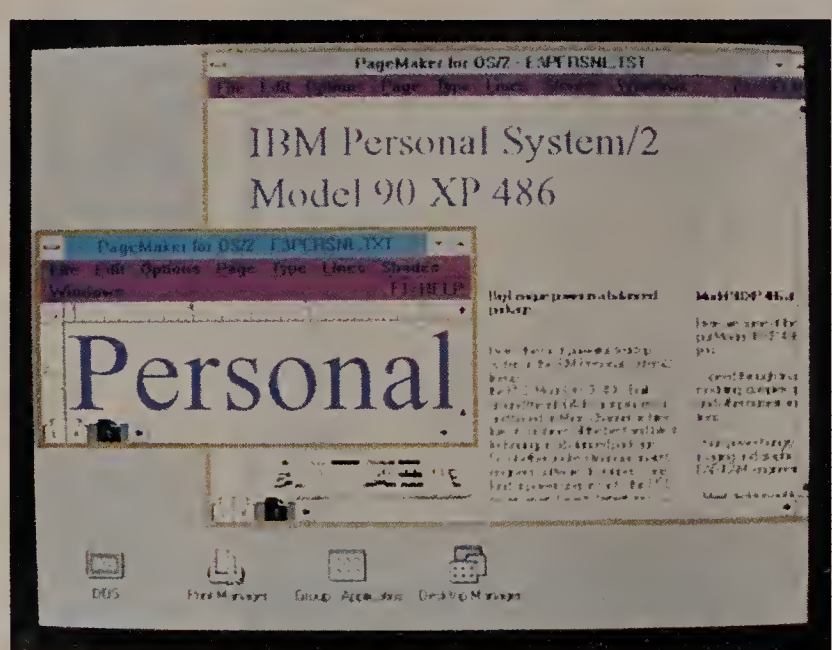
On the motherboard, two vertical racks of sockets hold up to four SIMMs each. The power supply is 194 watts, and two serial ports and one parallel port are standard.

The 33-MHz Model 90 with 320MB drive comes in at $16,695; the comparable Compaq Deskpro costs $16,499. At the entry point, the 25-MHz IBM machine with 80MB lists for $12,495; the closest Compaq alternative costs $12,499 with a 120MB drive.

Model 95: Son of Tower of Power

The most powerful PS/2 is the Model 95, a tower slightly

XGA displays two-and-a-half times as many pixels as VGA, giving image quality a dramatic boost.



The slimmed-down OS/2 1.3 offers an on-the-fly font generator from Adobe. Its PostScript fonts look almost the same on screen as they do on hard copy.

shorter and squatter than the familiar Model 80 at 8 inches wide, 20 inches deep, and 19¾ inches high. This machine holds eight 32-bit slots, with six of them available. Two of the slots have XGA pass-through extensions; the SIMMs plug right into the system board.

The 95 stocks a 329-watt power supply and seven storage bays—two for floppy disks, CD ROM drives, or tape backup and five for hard disks. That means you can get up to 1.6GB with IBM drives, more with products from other suppliers.

IBM also offers a $6500 external storage enclosure for SCSI devices, which essentially is a 95 box gutted of everything but a 320MB drive, power supply, and cables. (This box seems a bit dear, seeing that the drive itself costs $5500.) You can pile in seven SCSI devices.

If you add more SCSI controllers and storage enclosures, you can grow the system to 28 hard disks and 8.96GB. You can sprinkle DOS, OS/2, AIX, and SCO UNIX across these drives and choose any one as a boot drive. (Those thrilled by this prospect should note that while OS/2 supports 24 hard drives, DOS handles only 7, and you'll hit serious data transfer bottlenecks long before you install 24 drives.)

In some roles, such as network service, the Model 95 may well end up in a closet sans monitor. For these installations, the tower sports an 8-character LED diagnostic display in front.

A 33-MHz Model 95 with 320MB costs $17,745—substantially more than the closest comparable Compaq and substantially less than Compaq's Systempro, whose 486 models begin at $20,999.

Where's the Super Server?

You can't fairly pit the Model 95 against the Systempro in a King Kong–versus-Godzilla network server thriller. Targeting networks of three dozen or fewer workstations rather than much larger installations, the 95 omits Compaq's dual-processor architecture and proprietary Intelligent Drive Array disks.

However, IBM freely acknowledges that the 95 is a main building block for the "super server" shown in prototypes for more than a year, which IBM will hurl against the Systempro in the fullness of time. Among the missing components are a bus-master coprocessor card and bus-master network adapters.

Software probably represents a larger development hurdle. Both OS/2 and the associated OS/2 LAN Server need major enhancements to fully support the hardware potential of such systems. Compaq's in the same boat; only UNIX-based network operating systems currently chug along effectively on more than one processor at a time.

Polishing OS/2

With droves of software houses and corporate customers finally turning to *Windows,* IBM is preaching the virtues of OS/2 to fewer converted. And the OS/2 diehards are waiting for OS/2 2.0, the full 32-bit version that Big Blue expects to ship to selected customers by year-end.

But many also want OS/2 1.3—a downsized, faster 16-bit version—to run on their 286 and SX machines. They groaned about the prairies-full of memory gobbled up by earlier versions. Now IBM claims that OS/2 1.3 can run one DOS and two OS/2 applications in as little as 2MB of

SNAPSHOT

OS/2 1.3

IBM's better-tuned 16-bit OS/2 can run two OS/2 applications and one DOS package in as little as 2MB of memory.

KEY FEATURES

- **Performance boost up to 25 percent for applications constrained by memory and 5 percent for others**
- **Adobe Type Manager offers matching PostScript fonts for screen and printer**
- **Print Manager solves many printer problems**

AVAILABILITY

December 1990; March 1991 for LAN Server 1.3

PRICING

$340; free upgrade within 120 days of shipping for OS/2 1.1 and 1.2 customers and for OS/2 LAN Server 1.0 and 1.2 customers; $830 for OS/2 Extended Edition 1.3; $1040 for OS/2 LAN Server 1.3

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XGA: PASSING TOUGHER SCREEN TESTS

PC software is feeling o strong grovitotionol pull toward more sophisticoted, more pleosing grophics. Building on IBM's 8514/A grophics technology, XGA is o direct response to this attroction ond will likely set o new grophics stondard.

While suppliers have competed vigorously to bring grophics more powerful thon VGA to the masses, none of the new hordware hos goined widespread softwore support. IBM aims to end the squobble, positioning XGA not os an add-on but os o standord for high-end PCs. In oddition to being built into all Model 90 motherboords, XGA in its boord incarnotion comes with oll Model 95s. IBM olso will offer the boord as o $1095 option for the Model 55 SX and up.

"We're making it o public stondord, just like we did with VGA," soys on IBM spokesperson. IBM will releose XGA specifications, encouraging other vendors to offer the technology—which meons thot prices will drop dramaticolly.

Like the 8514/A, the basic 512K version of XGA provides 1024 by 768 resolution in 16 colors. Add onother 512K of video RAM, ond it displays up to 256 colors. Hordware support for 132-column text mode is built in. IBM will ship XGA with drivers for *Windows 2* ond *3.0*, OS/2 1.2 ond 1.3, *AutoCAD*, ond perhaps other opplications. Like IBM's eorlier 8514/A adopter, which left mony users feeling they were paying for high-resolution flicker, XGA will drive IBM's 8515 ond other monitors in interlaced mode.

Along with higher resolution comes the need for on-boord grophics processing power, which XGA packs. Optimized for windowing environments, it olso runs DOS VGA softwore up to 90 percent faster thon VGA. XGA is also supposed to be considerably foster than the 8514/A (whose role now ends).

In o speciol 16-bit color mode with the odded memory, XGA con hondle up to 65,536 colors ot stondord VGA resolution. This is substantiolly below the 24-bit photoreolism of Truevision boords ond similor products, but the images are still dozzling. This tolent should be key for future grophics ond multimedio opplicotions.

IBM won't clarify its plons to slide XGA onto the motherboord of other PS/2s, except to say the 32-bit boord-level product is tuned to work with 386s ond 486s, so XGA won't appear on 286-bosed models. —*E. B.*

Color Graphics Standards

Adapters for PC business applications

Adapter	Year	Maximum resolution	Colors
CGA	1981	320 by 200	4
EGA	1984	640 by 350	16
VGA	1987	640 by 480	16
8514/A	1987	1024 by 768	256
XGA	1990	1024 by 768	65,536

XGA's resolution matches that of its immediate and unsuccessful predecessor, IBM's 8514/A. But this time, IBM has published the hardware specs, enabling competitors to create clone XGA boards that will probably cost half as much and sell like hotcakes.

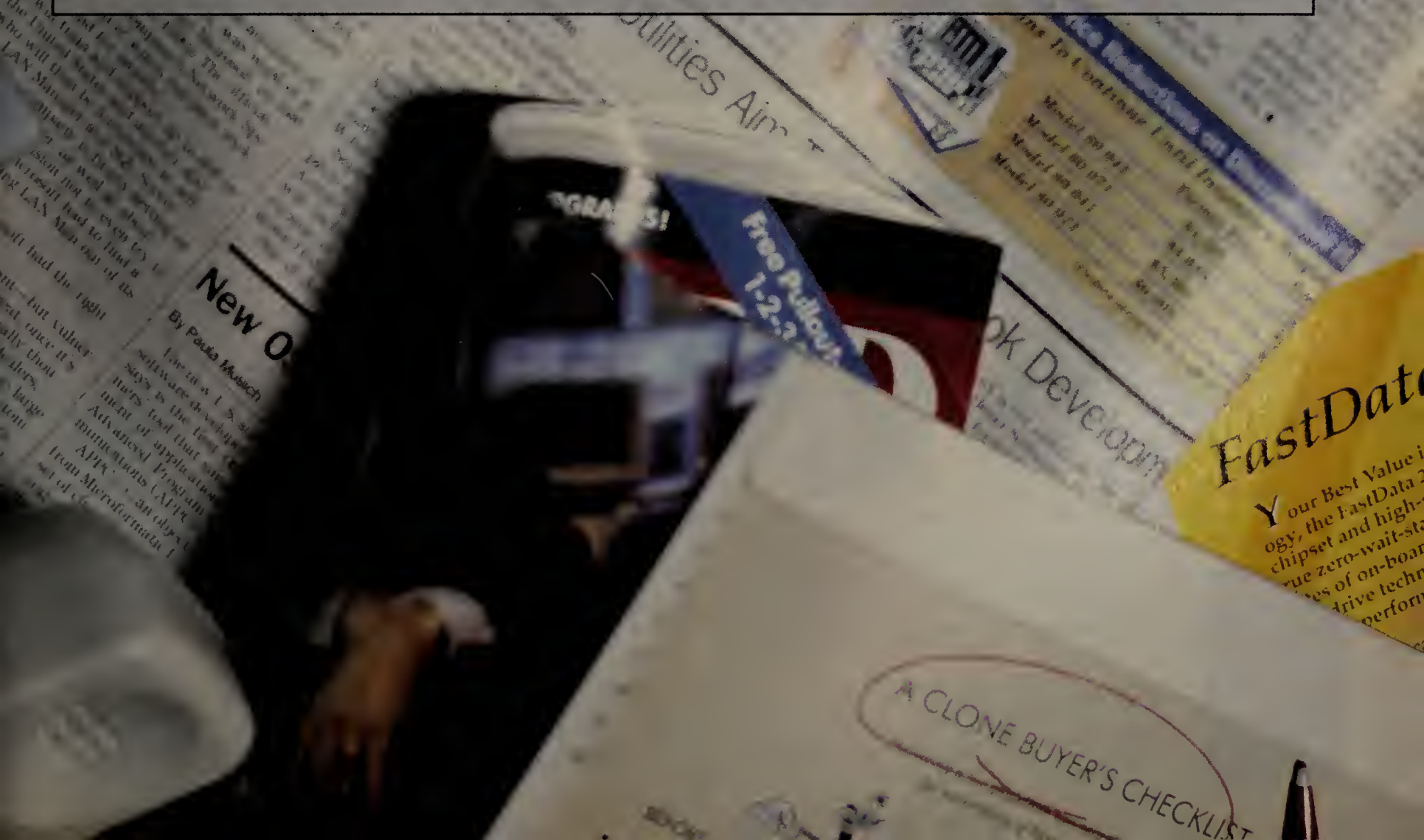
memory. Performance has seen a significant boost as well, especially for packages that previously were memory-limited—these could see improvements of up to 25 percent, by early estimates. Hard disk requirements dip as low as 10MB.

OS/2 1.3 gets a brand-new look by bundling Adobe Type Manager into the Presentation Manager user interface, so that all PM applications give you three scalable PostScript font families that match on screen and printer. Additionally, IBM has solved many of OS/2's exasperating printing weaknesses with a Print Manager that makes it easier to install and configure printers and lets OS/2 talk to many more devices as well.

Earlier OS/2 releases gobbled memory and couldn't talk to most printers. The PS/2 Model 70 486 (previously IBM's top system) couldn't offer the mass storage and memory capacity to do a 486 justice. Now IBM has made up for these shortcomings. The XPs prove IBM can provide serious competition and—with super XGA graphics—set a new industry standard.

Eric Bender is PC World's *East Coast editor.*

When choosing a personal computer, there are two questions you should ask.



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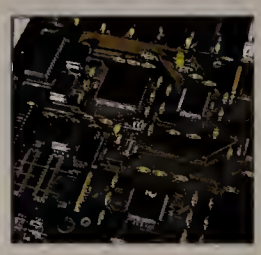

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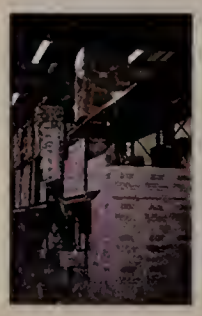

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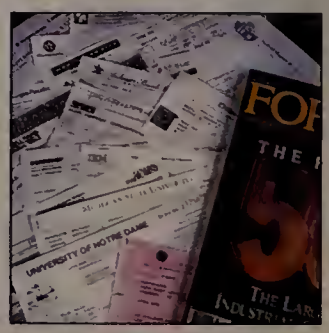

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System Price	65mb	80mb	100mb	200mb
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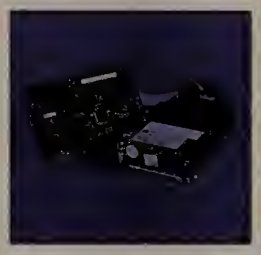

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System Price	40mb	65mb	80mb	100mb
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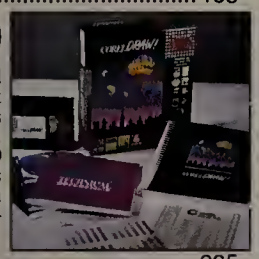
Corel Draw $309



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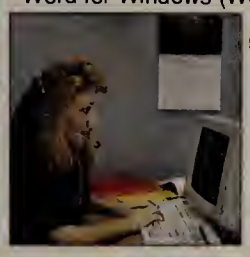

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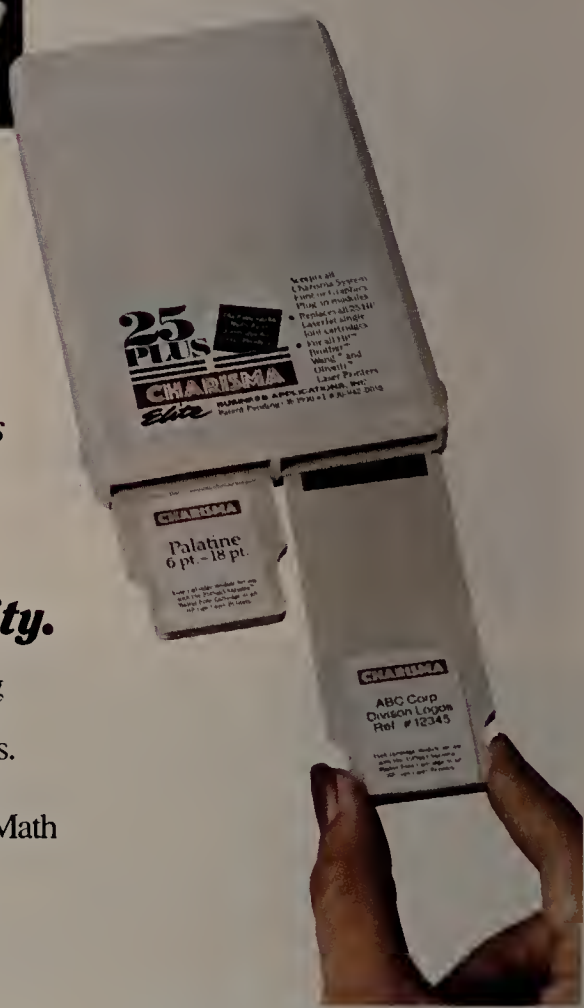

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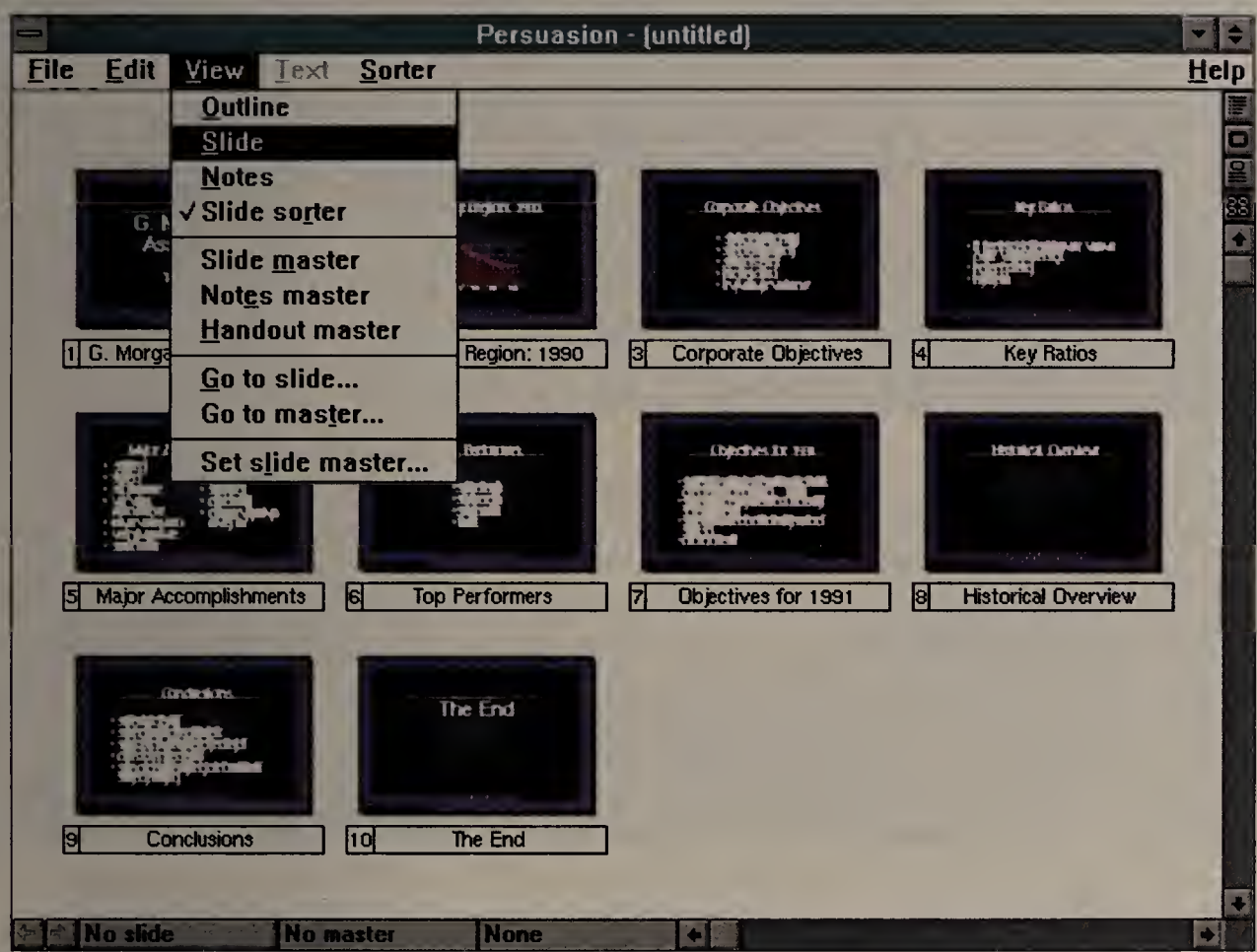
Easy Persuasion

With Mac-like flair, Aldus's new package eliminates many redundant chores involved in creating presentations.



Persuasion gives you global control over your entire presentation. You can view all your slides at once, rearrange their order, or jump quickly to a specific image.

John Walkenbach

The premise is simple: You shouldn't have to be a graphics professional to produce professional graphics for your presentations. *Aldus Persuasion 2.0*, the *Windows* version of the powerful Macintosh presentations package, makes this argument convincingly—and might even sway users of *PC World*'s 1990 Best Buy *Microsoft's PowerPoint for Windows* (see "Graphics Power for the Rest of Us," November 1990).

Like *PowerPoint*, *Persuasion* offers powerful global control features, but it adds the integrated outliner that its *Windows*-based rival lacks. And its wealth of preformatted master slides surpasses Microsoft's, letting you focus on the content of your presentation instead of its design. Users of the character-based *Harvard Graphics* and *Freelance Plus* will be amazed at the results they can achieve with relatively little effort.

On the downside, since *Persuasion 2.0* doesn't support *Windows*' Dynamic Data Exchange (DDE), you can't create "warm links" to spreadsheet data. Fortunately, the program does enable you to import named ranges in *1-2-3* and *Excel*, making it fairly easy to update your charts with new data.

Easing Into Presentations

Persuasion covers all the bases in presentation development, from building outlines and creating charts to producing audience handouts and speaker's notes. Fully mastering all these features will take time; fortunately, *Persuasion*'s master slide and outline facilities offer some elegant shortcuts.

Like *PowerPoint*, *Persuasion* comes with master slides, which contain information about fonts, background colors, and where text and graphics will appear on each slide. But *Persuasion* also provides 36 *auto-templates*, each containing seven similarly designed master slides and a background master, that let you change the entire look of your presentation with a few clicks of a mouse. The result is easy, professional-looking presentations—even for those who wouldn't know a T square from a T-bone steak.

The advantage to *Persuasion*'s auto-templates becomes obvious when you use the integrated Outline View. You enter the title of each slide on the first level of the outline and add subheads and bulleted text items on deeper levels. Then, to assign master slides to your outline, simply pop up a menu and select the appropriate slide type (such as Title, Two-column Text, or Chart and Text) for each level. *Persuasion* automatically pours the outline text into the master slide's *placeholders* (areas of the slide formatted for text and graphics) in the styles you've selected.

In Slide View you can view your neatly formatted presentation, create or edit charts, and zoom in to add finishing touches. You can modify slides

SNAPSHOT

Aldus Persuasion 2.0 for Windows

A longtime favorite in the Macintosh environment, *Persuasion* brings its graphics wizardry to *Windows*, offering control over all aspects of your presentations.

KEY FEATURES

- **Extensive global presentation controls**
- **Tightly integrated outliner for organizing and creating slides**
- **Auto-templates simplify presentation design**
- **Good drawing and enhancement tools**

AVAILABILITY

Second quarter 1991

PRICING

$595 (includes Adobe Type Manager fonts package)

Aldus Corp.
411 First Ave. S
Seattle, WA 98104-2871
206/622-5500,
206/343-4259

Reader service no. 645

selectively, or change the entire look of your presentation by choosing another auto-template. And, as with *PowerPoint*, *Persuasion*'s Sorter View gives you a bird's-eye view of your slides and lets you rearrange them easily.

Feeling artistically constrained by the auto-templates? You can also place graphs and text blocks in areas of the slide not defined by placeholders, or modify master slides to create a custom auto-template. However, unlike *PowerPoint*, *Persuasion* works with only one presentation file at a time, which makes transferring slides between presentations difficult.

Using Persuasion's auto-templates, you can choose from a variety of colorful graph types and modify them with text and data.

Charting: A Clear Course

Persuasion's charting capabilities are more powerful than *PowerPoint*'s, thanks to an easy-to-use overlay feature that lets you mix graph types such as lines and bars. And creating organizational charts is a breeze—just enter the hierarchical information into an outline and tag it as an org chart.

The easiest way to create a chart is to assign a master slide containing a graph placeholder to your current slide. Unlike most packages, *Persuasion* doesn't provide a visual gallery of graph types; rather, it displays tiny icons and graph types by name.

To select a chart, you click on the graph icon, position the cursor over the placeholder, and click again. Two new windows appear: a spreadsheetlike data entry form and a dialog box in which you specify your options. The data entry window lets you type in data manually or import it from a spreadsheet, but you can't perform math functions or define formats. The dialog box makes it easy to specify chart settings (such as scale values, tick marks, and numeric formats) and later apply them to other graphs.

While the prerelease version could import only text files, the shipping version should handle data from *Excel* and *1-2-3*.

Fine Art of Manipulation

Persuasion provides a good assortment of tools for enhancing your slides, but it's no match for Micrografx's *Charisma*. While you can draw boxes, lines, polygons, and freehand objects, you can't fill the objects with graduated shading, and you can rotate them only in 90-degree increments. Unfortunately, text can't be rotated at all.

On the other hand, you can break objects apart—for example, ungroup the elements in a bar chart and apply different colors to them, to emphasize, say, a specific month's data. Users will appreciate the *PageMaker*-like rulers and guides for aligning objects, as well as its pasteboard—an area on screen where you can store text and graphics before placing them in slides.

Need to enhance a text chart? *Persuasion* hands you complete control over fonts, type sizes, colors, bullets, and drop-shadow effects. And Aldus will bundle *Adobe Type Manager*, which provides 13 scalable font outlines, plus access to thousands of other Type 1 typefaces (see "Easy Fonts for Great-Looking Documents" in this issue).

Less artistic types can import ready-made images in a variety of formats, including CGM, TIFF, PCX, PIC, and *Windows* metafiles, plus HPGL plotter graphics. Aldus also provides more than 100 clip-art images, but *Persuasion* lacks *Charisma*'s handy preview feature, so you'll have to thumb the manual to see what's available.

Getting the Message Out

With presentations, output media is a big part of the message, and *Persuasion* handles all forms—35mm slides, overhead transparencies, paper handouts, and screen-based slide shows. You can print audience handouts with multiple slides per page, as well as miniature versions of your slides annotated with notes.

An especially powerful feature is the ability to create *slide layers*. You can specify that objects appear on different layers, which can be displayed or output in sequence—ideal for "build" slides in which bulleted points or graph elements are added one at a time. You can output each layer separately or specify different transition effects for displaying layers on screen.

There's no run-time module, however, which means you'll need a copy of *Persuasion* in order to make a screen presentation. To ease 35mm slide production, *Persuasion* will include a direct communications link to MagiCorp, an overnight slide service bureau. Aldus also expects to include links to the Autographics slide service, plus support for Genigraphics drivers.

The Final Pitch

Persuasion's well-integrated outliner and sophisticated use of master slides may well give it an edge over *PowerPoint*. Its charting and enhancement tools are also first-rate, but sophisticated graphics users may detect a certain lack of *Charisma*.

There's little doubt that *Windows* is an excellent environment for presentation graphics. Once you've picked up *Persuasion*, character-based products appear clunky and inefficient. If the migration towards *Windows* continues, users of *Harvard Graphics* and *Freelance Plus* might be persuaded to move up to a graphical solution.

John Walkenbach is a contributing editor for PC World.

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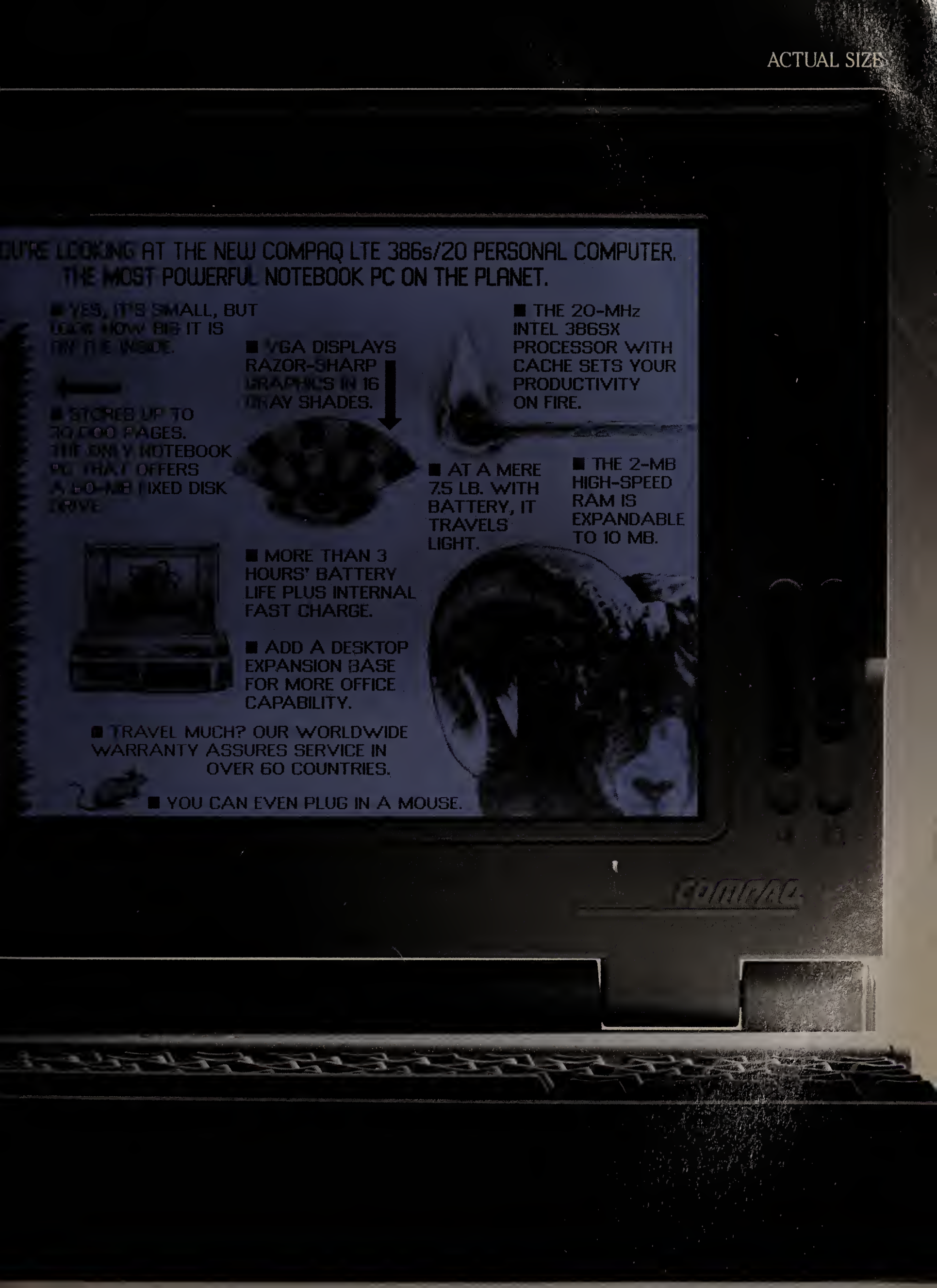

*Based on a Gallup Organization poll conducted for Computer Reseller News Benchmark Magazine

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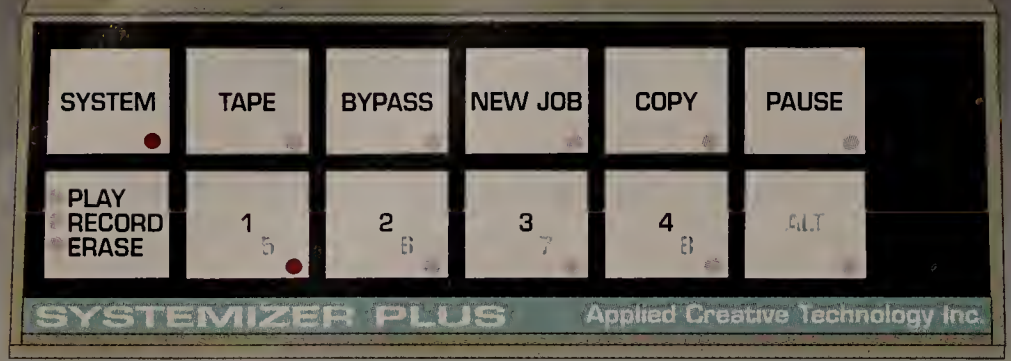
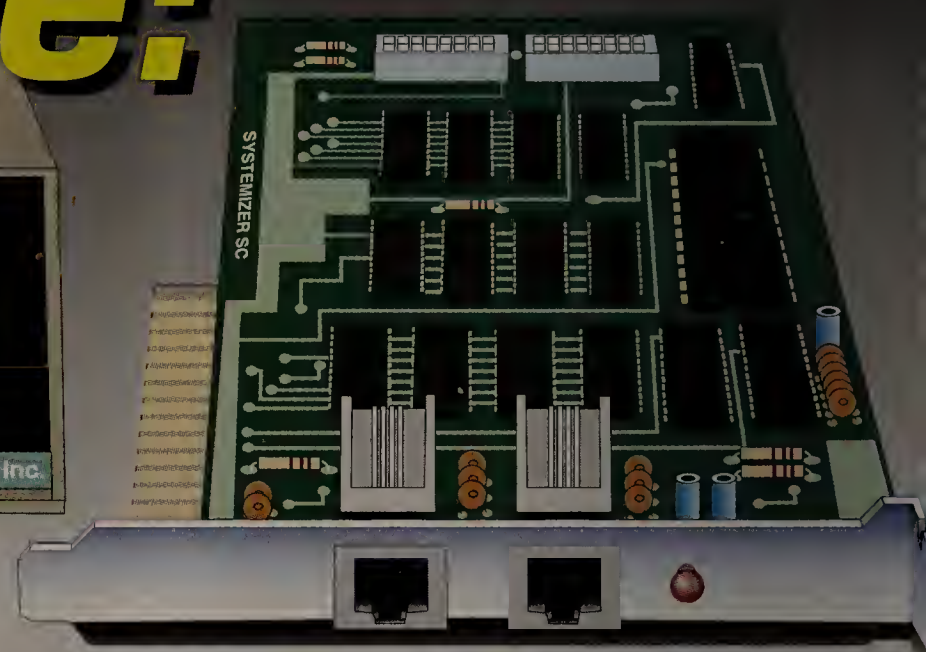


Several models available. The **Systemizer® Plus** shown above is an externally mounted networking module. Because it's self-contained and requires no software in the computer, it can work with practically any computer, operating system and application program.



Or use the internally mounted **Systemizer® SC**, a slot-card version of the Systemizer Plus. For MS-DOS® PC's and compatibles. The SC and Sys+ can be used in the same network, as shown in the diagram below.

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- Share Plotters
- Share a Modem
- Share a FAX
- Exchange E-MAIL
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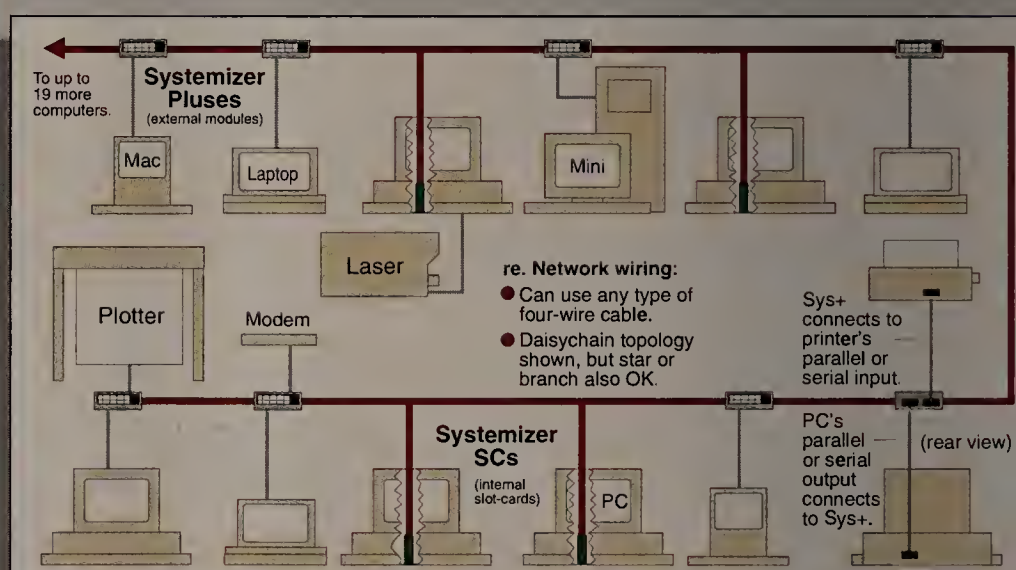
* (networks can be "stacked" to serve more than 31 users)



Example Systemizer® network consisting of 11 micros *and* a minicomputer, sharing 3 printers and a modem via a mixture of Systemizer Pluses and Systemizer SCs. Note: though not shown here, some of the computers could also be connected to a traditional LAN or WAN.

Systemizing is a distributed-processor network-like approach to sharing peripherals, consisting of internally or externally mounted modules. It is a time-tested, proven technology, that has become the connectivity standard at many of the world's largest corporations and throughout the U.S. and Canadian federal governments. Over 50,000 are already in use. Why? Because Systemizing delivers what 95% of corporate computer users want from networking, without the associated costs and complications. In addition, Systemizing fits perfectly into a corporate networking strategy because it will work in conjunction with any LAN or WAN. A company can have the best of both worlds: Systemizing for the ultimate in peripheral sharing, and if needed, a LAN or WAN for users who must access a central database.

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Circle 19 on reader service card

PRODUCT OUTLOOK

Edited by MIKE HOGAN

Nextstation, Nextcube, Nextstation Color, Nextdimension Board

What's Next? More Power, Lower Prices, New Shapes

The Nextdimension is one of three new variations on Next's sleek black cube. The trio offer greater speed, better pricing, and new storage and color options.

When introduced in 1989, the Next computer was based on a radical design that reached into the future of computing and brought back read/write optical storage, a near match between screen and printer output, and a flexible new programming environment that made UNIX look almost human. Alas, the future came at a price ($10,000, to be exact) that kept Next systems on loading docks rather than desktops. And applications for the machine have been slow to arrive.

Next hopes to reverse its fortunes with a new trio of models offering better pricing, faster performance, and snazzy color-display options.

The entry-level Nextstation trades the signature black cube for a shape akin to a 15-by-17-by-2½-inch pizza box. At $5000, it's half the price of the original Next Computer, but it still comes with the attractive MegaPixel (1120 by 820 resolution) Display. It's faster too, thanks to a new 25-MHz 68040 CPU. And instead of a slow, 550MB read/write optical drive, the standard Nextstation configuration includes a 2.8MB floppy and a 17ms 105MB hard drive.

Considering the storage needed for release 2.0 of the system software, the Nextstep development environment and its bundle of applications, E-mail, and various and sundry on-disk reference works and utilities, you'll probably want to spend another $2995 for the 15ms 340MB hard drive. You'll also want to take the standard 8MB of RAM a little closer to its 32MB maximum.

If you want expansion slots—three, to be specific—you'll need to step up to the $7995 Nextcube, the successor to the original computer and the most expandable for network server or other transaction-intensive applications. It lets you increase memory to 64MB and choose Winchester

(continues on p. 94)

IN BRIEF

Next becomes more appealing, thanks to better pricing on new color and black-and-white models that incorporate both today's and tomorrow's technology.

Next Computer, Inc.
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Redwood City, CA 94063
800/848-6398
Reader service no. 615

INSIDE PRODUCT OUTLOOK

94 **TurboTax, TaxCut, MacIntax for Windows** Better answers for troublesome April questions.

96 **Wyse Decision 486/33E** Souped-up tower system handles transaction-heavy applications.

98 **Express Publisher 2.0** Make your documents more exciting with electronic sleight of hand.

98 **IBM PS/1 Printer** Small enough for the home, good enough for the office.

102 **Co/Session 5.0** Lets you use your mouse when you're running applications from a remote PC.

106 **Turbo Pascal 6.0** Build slick interfaces with a great library of objects.

106 **PacificPage PE 4.9, PacificType, Pacific Memory, PacificConnect** Give your old LaserJet new fonts, memory, and more.

108 **SatisFAXtion** Send faxes from your PC with just a few keystrokes.

108 **Quicken 4.0** Investment tracking makes best-seller even better.

116 **CompuAdd 333, 333T** Low-priced 386 systems that have the "hot-slot" performance advantage.

116 **AST Premium II 386SX/20** Faster performance, a smaller box, and a 16-MHz price.

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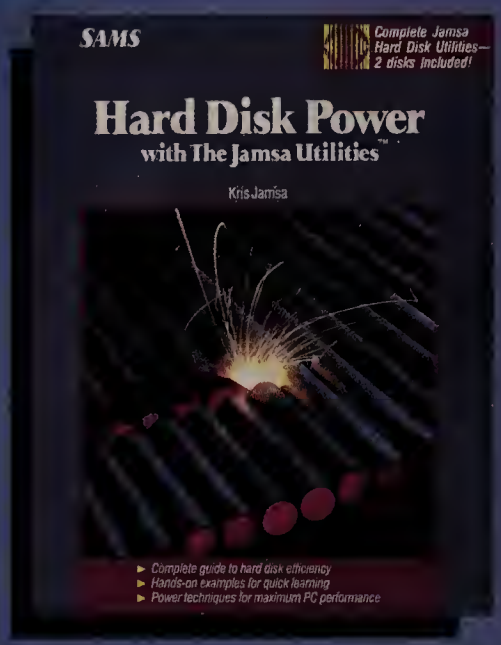

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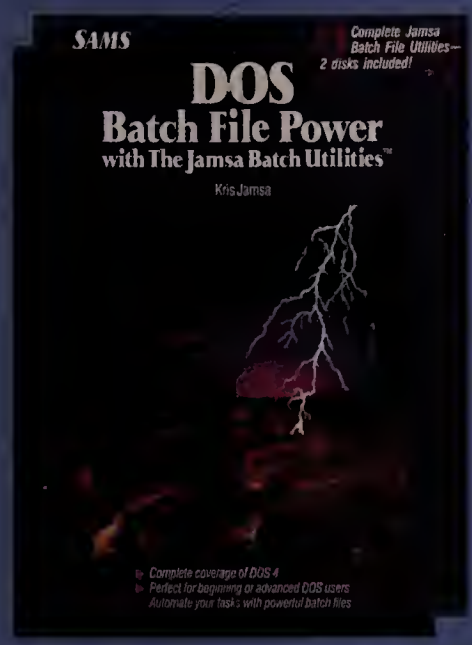

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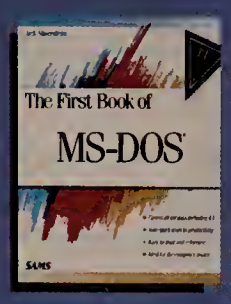

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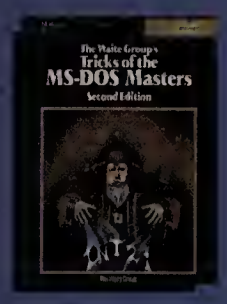

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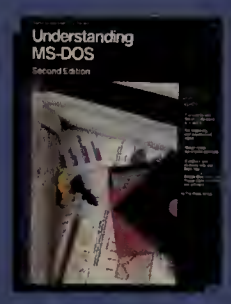

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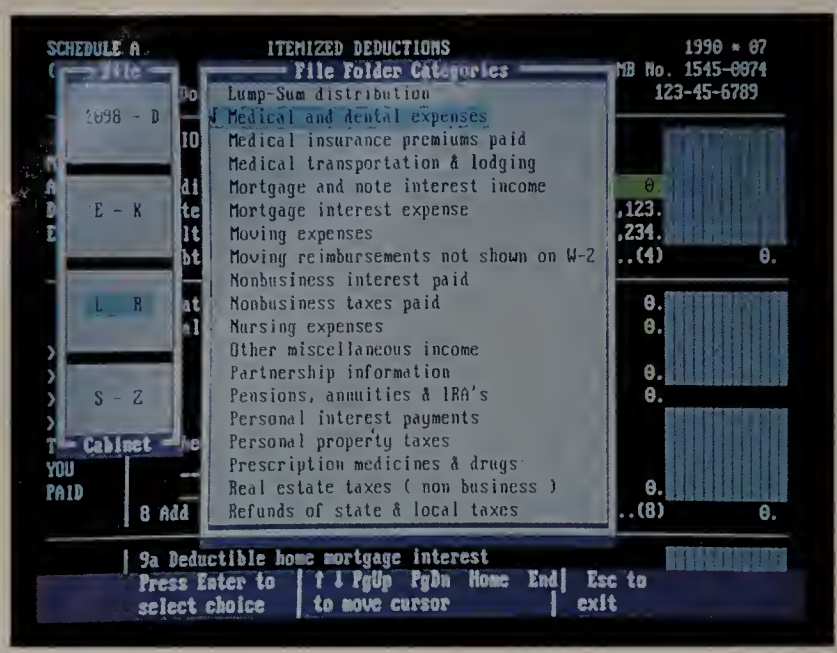
TurboTax, Andrew Tobias' TaxCut, MacInTax for Windows

Top Tax Packages Beefed Up for 1991



On-line expert tax assistance is the focus of this year's revisions to the leading PC-based tax preparation programs. TurboTax's new audit feature scans your return and flags entries likely to trigger an IRS audit.

Three leading suppliers of PC tax software have introduced their 1991 tax packages, adding multilevel tax help to speed users through the annual ordeal of preparing federal income tax returns. (For more information about tax software, see "Tax Relief For the Rest of Us" in this issue.)

ChipSoft has responded to competition from MECA Software's *Andrew Tobias' TaxCut* by adding features to guide users of its market-leading *TurboTax Federal Personal 1040* through their tax return. Last year, *TaxCut* won praise from users for its plain-English tax preparation advice from tax attorney and software developer Dan Caine.

TurboTax is fighting back this year with a "next-step" feature that guides you through the array of forms and schedules. As you complete a series of questions concerning your finances, *TurboTax* jumps you to relevant forms, holding your hand through the entire process. Also new with version 8.0 of *TurboTax* is an audit feature that scans the return and flags entries likely to trigger an IRS audit. Intuit's *Quicken*, a personal finance manager, automatically tracks tax-related income and expenses, and that data can be transferred to *TurboTax* electronically. *TurboTax* requires DOS 2.0 or a later version and 512K of RAM. It sells for $75; upgrades cost $37.50.

But MECA hasn't been sitting still. It too has included an audit feature in this year's *TaxCut*, one designed to highlight missing or incomplete information, such as an incomplete social security number. To attract sales among its huge installed base of *Managing Your Money* users, MECA has improved the connection between that personal finance package and *TaxCut* by allowing for the direct import of *MYM* files into *TaxCut*. Relevant information is automatically carried over into the appropriate line of your tax return. *TaxCut* requires DOS 2.0 or a later version and 512K of RAM. It retails for $90; upgrades are $50.

The lone *Windows* tax package on the market, SoftView's *MacInTax for Windows*, now supports *Windows 3.0*, and the company claims substantial speed improvement. Like its two DOS competitors, *MacInTax for Windows* now includes an on-line tax adviser to decipher complex IRS regulations. With the program's new interview format, users answer a series of questions, and *MacInTax for Windows* identifies the required forms and schedules.

With SoftView's proprietary forms technology, *MacInTax for Windows* can print forms identical to the IRS's on plain white paper. *MacInTax for Windows* requires DOS 3.0 or later and 2MB of RAM. Its $99 retail price is reduced to $50 for users upgrading from the previous year.

All three packages support electronic filing. For a fee of approximately $25, taxpayers who expect a refund can have an authorized transmitting service file their return electronically to the IRS. Refunds are guaranteed within three weeks—sooner if you have the check automatically deposited to your bank account. "Early bird" versions of all three packages are available now. Final versions, incorporating last-minute changes to the tax law, are scheduled to ship sometime after January 15. —*Roberta Furger*

IN BRIEF

More hand-holding and automatic audit alarms are the key features of this year's versions of the top tax packages: *TurboTax, TaxCut,* and *MacInTax for Windows.*

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P.O. Box 85709
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92186-5709
619/453-8722,
800/755-1040 (fax)
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Next

(continued from p. 91)

drives as large as 1.4GB or optical drives of up to 550MB.

You can turn the Nextcube into a 32-bit color system that displays more than 16 million shades for publishing or graphics design by adding the Nextdimension board and MegaPixel Color Display. This boosts the price to $13,990 but gives you an Intel i860 graphics accelerator supported by 8MB of RAM (upgradable to 32MB) and JPEG real-time video playback from the optical drive, making Nextcube an ideal multimedia platform.

Nextstation Color is a slightly less powerful (16-bit) color solution for the pizza box. It offers "only" 4096 simultaneous colors, but for $7995 you get a graphics workstation that's every bit as innovative as the Sun Sparcstation, but cheaper. Next also saves money in printing. Thanks to the integration of Display PostScript, Next continues to give you PostScript printing while halving the price of its 400-dpi laser printer to a mere $1795.

Finally, the easy-to-program Nextstep environment is beginning to pay dividends in the form of a number of novel Next applications, such as Lotus's *Improv* spreadsheet and Ashton-Tate's *PowerStep* spreadsheet. —*Mike Hogan*

DR DOS 5.0.
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The Press goes on to mention that because DR DOS 5.0 is fully DOS compatible, you can run all your current DOS applications. And because it is easy to install and requires no hard disk reformatting, upgrading to DR DOS is simple. Since DR DOS 5.0 also includes ViewMAX™, a graphical interface, DOS is easier than ever to use.

Now if we could just get a word in edgewise, we would simply like to add that DR DOS 5.0 is available now. Call your reseller now.

DR DOS 5.0

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For Laptop and Notebook manufacturers, DR DOS 5.0 is fully executable from either RAM or ROM. And, it's available with BatteryMAX™, a battery-saving feature that can increase battery life 2-3 times (dependent upon OEM implementation).

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Circle 55 on reader service card

Wyse Decision 486/33E

More of Everything Is Packed Into the Wide-Body Wyse

The Decision 486/33E marries the fastest processor available to the fastest I/O bus, and it adds maximum storage and expansion options so that you can tackle the largest applications.

Some applications have a way of growing on you, and outgrowing even the most powerful computer systems. Maybe you're running a large data base application for a network or some other transaction-heavy job. Wyse's new Decision 486/33E tower system leaves you room to grow by giving you more of everything: processing power, I/O speed, expansion slots, and even a little something extra.

The bonus in this system is its unusual 64-bit asynchronous bus, which connects CPU, memory, and the EISA bus. This extra bus lets the processor feed two 32-bit data words to memory at a time, keeping the 128K cache from being overwhelmed even when you run multimegabyte applications. Wyse also augments the i486 CPU's bracing 33-MHz performance and on-board 8K cache with a 128K copy-back cache overseen by a proprietary Wyse controller.

Everything else is pedal to the metal as well. Not only is the Decision 486/33E EISA-based, but you get a bountiful nine 32-bit EISA slots, leaving eight free after a video card is installed. Two megabytes of memory are standard, but you can expand that to 192MB thanks to four 32-bit memory slots connected to the 64-bit bus. Because the 64-bit bus is asynchronous, you'll be able to upgrade and take full advantage of the 50-MHz i486 when that CPU becomes available.

The Decision 486/33E's tower case has six rear half-height drive bays. You can pack up to 3.4GB of disk, tape, or optical storage into the tower. It's driven by a stout 325-watt power supply and cooled by two separate fans. Its software bundle includes a version of DOS 4.01 that is enhanced by Wyse with on-line help, disk caching, and EMS 4.0 support.

Wyse sells the Decision 486/33E in a single-floppy version for $8999; more cash buys you a choice between IDE and ESDI drives. Wyse recommends ESDI drive models for this system, such as Wyse's EISA Turbo ESDI controller, which provides up to 33MB-per-second transfer rates for up to two ESDI drives.

You can get a system with a 300MB ESDI drive and Turbo ESDI controller plus a 1024 by 768 color monitor and video card, all for $13,138. If you're among the majority who will use this machine as a LAN server, you also may be interested in Wyse's companion network workstation, the Decision 386SX/16S. This 16-MHz small-footprint desktop comes configured with 1MB of memory and an 800 by 600 VGA adapter and sells for $1599 in a diskless version. —*Mark Henricks*

IN BRIEF

The Decision 486/33 gives you more of everything, including a 64-bit bus for speeding data between memory, CPU, and EISA bus.

Wyse Technology
3471 N. First St.
San Jose, CA 95134
800/438-9973
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PrinTools

Utility Tool Kit for Laser Printers

If you have a Hewlett-Packard DeskJet, LaserJet, or compatible printer, you can benefit from *PrinTools*—a terminate-and-stay-resident program that offers instant access to six of the most commonly used printer utilities.

Tired of drumming your fingers while your computer sends information to the printer? *PrinTools'* PT-Spool whisks your file to a dynamically sized buffer that can be located on your hard disk or in high memory and allows you to use your computer for other work while your file prints in the background.

Have questions, but not the time to call anyone? PT-Help provides on-line help taken directly from the tech support manuals at Hewlett-Packard. Insight claims that answers to 90 percent of the questions HP handles about LaserJets and DeskJets are contained in this handy utility, which also includes extensive help for the *PrinTools* utilities.

Another useful feature is the Save Settings function on the main menu. *PrinTools* comes with a default set of printer-output specifications, but with Save Settings you can create customized batch files for all kinds of print jobs, so you don't need to reset specifications every time you want to print.

PrinTools is not without its flaws. It takes a 55K bite out of conventional memory, and unlike Lasertools' *Printer Control Panel,* it doesn't perform automatic emulation switching between PCL and PostScript documents. Likewise, *PrinTools'* sixth utility, PT-Plot, turns your printer into an HPGL-2 plotter but works only with LaserJet Series III and IIID printers. Nonetheless, the HP-authorized help alone is worth *PrinTools'* low $129 price. *PrinTools* requires DOS 3.0 or a later version. —*Melissa R. Riofrio*

IN BRIEF

PrinTools packs the essential printer utilities for HP LaserJets and compatible printers into an inexpensive and easy-to-use program.

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Express Publisher 2.0

Text Effects for Occasional Publishers

Express Publisher 2.0 adds powerful text-handling features to a low-end package that has competed well against better-established players in the occasional-user desktop publishing market. Version 2.0 lets you produce attention-grabbing documents without having to live with a manual by your side.

Express Publisher 1.0's wide range of scalable fonts helped win over customers. The big news with the new version is *TextEffects*. This powerful text-handling program lets you fill a polygon with words or wrap letters around a curve to produce dramatic documents. You can also rotate text, add shadows, and stretch, reverse, and fill text, extending your font options considerably.

Sounds complicated, but it isn't. For text that gradually increases in size, you merely choose the size at the small end and at the large end. *Express Publisher 2.0* scales the intervening letters to produce an eye-catching headline. Some of the other effects aren't so simple, but a new on-screen training tutorial should help you get the hang of it.

Power Up also added support for *Harvard Graphics* CGM files. You can now edit an image that's zoomed in or out. Landscape printing is new, as is support for headers and footers in documents.

Express Publisher 2.0 costs $159.95. Updates from previous versions are $34.95. It requires DOS 3.0 or a later version, 640K of memory, a CGA or better monitor, a mouse, and a hard disk with 3MB of space. If you have extended memory or EMS 4.0 expanded memory, *Express Publisher* automatically takes advantage of it. —*Mark Henricks*

IN BRIEF

Thanks to powerful text-handling features in *Express Publisher 2.0*, you can easily produce attention-getting newsletters and other documents.

Power Up Software Corp.
2929 Campus Dr.
San Mateo, CA 94403
800/851-2917
Reader service no. 621

Express Publisher 2.0 has a wider range of scalable fonts and lets you create a variety of text effects such as wrapping words around a curve.

IBM PS/1 Printer

Users Get Home-Based Hard Copy

Working at home has always meant making do with less capable equipment—sometimes *much* less capable. The PS/1 was IBM's latest shot at bridging the gap between home and office PCs. The PS/1 Printer, a quality 24-pin dot matrix printer, aims in the same direction and comes closer to the mark.

This $449 impact printer is designed for light business, educational, and personal computing. Its compact size (16 inches wide and 13.5 inches deep) makes it a sure fit for home spaces, but it has enough features to handle business applications. It prints up to 64 characters per second in near letter quality mode and 192 cps in draft, making it comparable to several Epson and Panasonic low-end business printers.

Those printers have more memory, font options, and paper-handling features, but the PS/1 Printer has enough bells and whistles to get the job done. Although it doesn't support downloadable soft fonts or font cartridges, it comes with 180 by 360 graphics resolution and four resident fonts, each of which is available in seven pitches. Paper-handling options include continuous formfeed, single-sheet feed, three-part forms, envelopes, and labels. You can also pick up an automatic sheet-feed option for $199 or a tractor feed for $69.

The PS/1 Printer features plug-and-go installation and a one-year guarantee for free service and support. Like its computer namesake, the PS/1 Printer comes with the option to join the PS/1 Users' Club on Prodigy, where on-line support is available 18 hours a day, seven days a week. —*Cathy Smith*

IBM's PS/1 Printer brings 24-pin dot matrix printing home in a compact design for business, educational, and personal computing applications.

IN BRIEF

IBM's 24-pin PS/1 Printer is a scaled-down dot matrix with enough standard features to produce snazzy output at home.

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BlueMax, 386Max 5.0

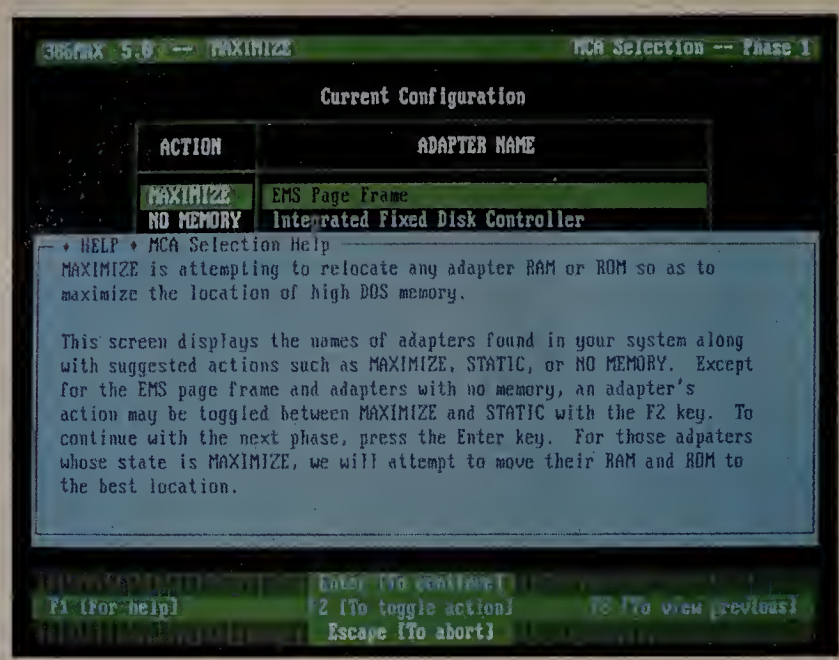
Memory Manager Learns Its PS/2s

When IBM designed the PS/2, it created a memory hog. You won't notice it until you need to run big applications *and* use a memory manager to load DOS utilities and TSRs into high memory—but when you do, you may find the applications that used to fit on your old PC no longer do. The reason: The PS/2's BIOS, designed to run with OS/2, takes up more high memory than the PC BIOS.

Qualitas' solution is *BlueMax*, a PS/2 version of its popular memory manager, *386Max 5.0*. Either program takes advantage of the 386 chip to make more room at the memory trough for all your hungry applications, but *BlueMax* adds a PS/2-specific wrinkle that can free up more than 65 percent of previously inaccessible memory above 640K.

BlueMax does its thing using a devious and, at first blush, unsettling technique: It compresses the parts of the IBM BIOS that aren't often used for DOS programs. As a result, what once took up 128K of high DOS memory now may occupy as little as 40K. If you want the squeezed features of the BIOS back in order to run OS/2, just reboot without *BlueMax*. If you're stuck with a memory-resident network driver and still have to run a big eater like *Ventura Publisher*, this could make a real difference in your workday.

In addition to its BIOS tricks, *BlueMax* incorporates some of the memory-saving techniques of *386Max 5.0*, beginning at installation. During this process, either program determines the best location for memory-resident programs, leaving you with the largest possible high-memory segments for other programs. The $155 *BlueMax* automatically makes available as much as 212K of contiguous high memory for the initialization of your TSRs, which often need more memory to start than to run. The $130 *386Max 5.0* provides 192K for initialization on a PC.



386Max 5.0 and its PS/2 counterpart, BlueMax, take advantage of the 386 chip to make more room for all your memory-hungry applications.

386Max 5.0 is compatible with *Windows 3.0* and even lets you load your printer utility, disk cache, or other TSR into high memory before *Windows 3.0* start-up. The new *386Max 5.0* runs on any 386 or better PC with DOS 3.0 or a later version, 1MB of memory, and a hard disk. *BlueMax*, which is also *Windows 3.0* compatible, has the same system requirements, but for a PS/2. You can upgrade from *386Max 5.0* to *BlueMax* for $25. Upgrades to the *Windows 3.0* version of *386Max 5.0* are free for registered *386Max* users. —*Mark Henricks*

IN BRIEF

BlueMax frees up memory for PS/2 users by reducing the space hogged by IBM's BIOS; *386Max 5.0* helps manage memory for the rest of us.

Qualitas Inc.
7101 Wisconsin Ave.
#1386
Bethesda, MD, 20814
800/733-1377,
301/907-0905 (fax)
Reader service no. 628

Co/Session 5.0

Now You Can Point and Click From Afar

Dialing into a PC to run software applications from a distance often means sacrificing certain creature comforts. Your software doesn't work as quickly as it does on the PC directly in front of you, and the mouse is as useful as a chunk of plastic cheese.

Version 5.0 of *Co/Session*, Triton Technologies' remote communications software, reanimates mousy creatures so that you can happily point and click your way through mousable applications even at a distance. Additionally, *Co/Session 5.0* comes with expanded memory support—specifically, EMS 4.0. The $125 host version of the program now can be loaded into expanded memory and requires only 5K of conventional memory instead of the regular 50K to 102K.

While the host module runs memory-resident, the $135 support module can be run either in the foreground or as a TSR whose PC connects to the host PC over phone lines. Either host or support PC can call the other.

Co/Session 5.0 comes with a 4K add-on security program, *Safeguard*, which can be used to limit callers' access to certain drives, directories, and applications. It also prevents callers from leaving an application and gaining access to the host's DOS prompt, but it would seem more sensible to build these features into the software, as *Co/Session* competitors have done.

Other enhancements in version 5.0 include support for 43-line and 50-line text modes in applications running on the remote end, password protection for the phone directory in both the host module and the support module, easier modem configuration, and command-line options in the support version that enable calls to be placed without the use of menus. —*Judy Heim*

IN BRIEF

Co/Session 5.0 wakes up your mouse for remote PC use and lets you tuck its overhead into expanded memory.

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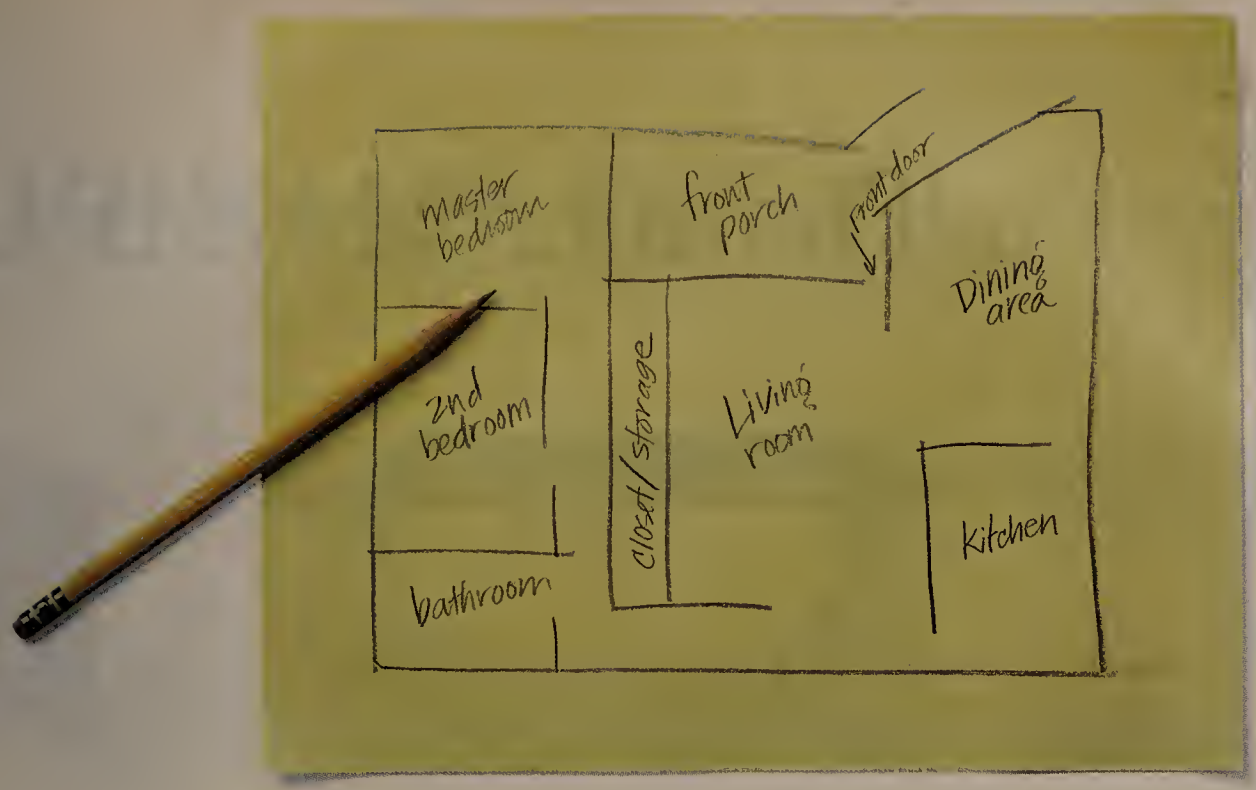

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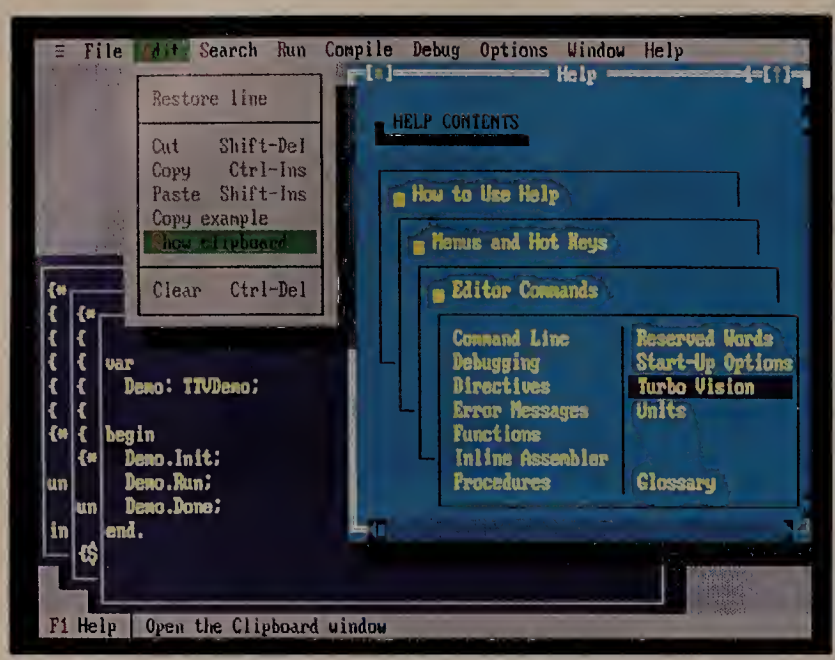
Turbo Pascal 6.0

Easier Programming Is the Object



Version 6.0 of Borland's popular Turbo Pascal gains still greater facility and more power within its new object-oriented programming structure.

No matter how you slice it, programming is a challenge, and anything that can make it easier is appreciated. With version 6.0 of its original language program, *Turbo Pascal,* Borland International has mustered a two-flank attack on programming complexity: with an improved development environment, and with a collection of objects to which the word *library* doesn't do justice.

The most spectacular new feature of *Turbo Pascal 6.0* is Turbo Vision, a library of integrated objects for creating text-based GUI-like interfaces. Turbo Vision offers objects for windows, menus, dialog boxes, and other features of modern, "mousable" programs. Because of its integration and object-oriented nature, Turbo Vision is much more than a conventional interface library; it provides a full structure onto which programs can be built.

Among the programs Turbo Vision has already helped create is the *Turbo Pascal 6.0* development environment. The editor/debugger is now a rodent-friendly, windowing workplace where you can view and edit multiple files at once. Other new features include macros, a better help system, conditional breakpoints, and EMS support.

The heart of *Turbo Pascal,* the compiler itself, hasn't undergone so drastic a change, but it has been improved. There's now a small, simple inline assembler that lets you easily put small pieces of assembly code into your Pascal program. This feature should not be confused with a real assembler, such as the Turbo Assembler that comes with *Turbo Pascal Professional.*

The *Professional* version includes a second, command-line compiler that runs in 286 and 386 protected mode, using extended RAM to compile large programs (which will still run only in real mode). As with other *Turbo Professional* languages, *Pascal Professional 6.0* comes bundled with *Turbo Debugger and Tools.*

Turbo Pascal 6.0 requires DOS 2.0 or a later version and 256K of RAM—512K for the integrated development environment. The regular version lists for $149.95, the *Professional* for $299.95. —*Lincoln Spector*

IN BRIEF

Version 6.0 of *Turbo Pascal* combines easier programming with an object-oriented structure that is at once intuitive and powerful.

Borland Int'l
P.O. Box 660001
Scotts Valley, CA 95066
408/438-5300
Reader service no. 617

PacificPage PE 4.0, PacificType, Pacific 4 Memory, Pacific Connect

Fulfilling the Promise of the LaserJet

Thinking about trading in your old reliable LaserJet for a sportier PostScript model? Pacific Data Products has a few ways you can get more mileage out of your laser—by adding everything from PostScript and fonts to memory and printer-sharing options.

PacificPage PE 4.0 is a major upgrade to Pacific Data's popular PostScript emulation cartridge. Like its predecessors, PE 4.0 lets your LaserJet pretend it's a PostScript printer, offering 35 scalable fonts and the ability to render complex images. But version 4.0 incorporates Bitstream's Speedo technology for faster font rendering and higher-quality output and requires only 1.5MB of printer RAM instead of 2.5MB. Also new is 4.0's ability to use extra memory to boost performance. The $499 cartridge is available for the IIP, IID, III, and IIID printers; owners of previous versions can upgrade for $99.

Thirty-five fonts not enough for you? Try PacificType, an add-on cartridge for PacificPage that contains an additional 40 scalable typefaces, from Baskerville to Zurich. Note, however, that the $399 cartridge works only with PE 4.0 already installed and requires a second font slot—which means Series IIP users are out of luck.

Of course, to download fonts or print full-page graphics, you'll need extra RAM. Enter the Pacific 4 Memory line, inexpensive upgrade boards that let you add printer memory for about half of what HP charges—from $199 for 1MB up to $499 for 4MB. Pacific 4 Memory is available for the Series IIP, III, and IIID printers.

Finally, if your work group isn't networked but you're still splitting one LaserJet, Pacific Connect offers an easy way to share the wealth. Plug this board into the printer's optional I/O slot, and you can link five PCs or Macintoshes to your Series II, IID, III, or IIID. The $399 Pacific Connect comes with one parallel and four serial ports, cabling, and 256K RAM for spooling and queueing print jobs; with 1.25MB RAM it costs $499. —*Daniel Tynan*

IN BRIEF

Pacific Data offers a passel of memory, font, and utility add-ons that can extend the life of your LaserJet.

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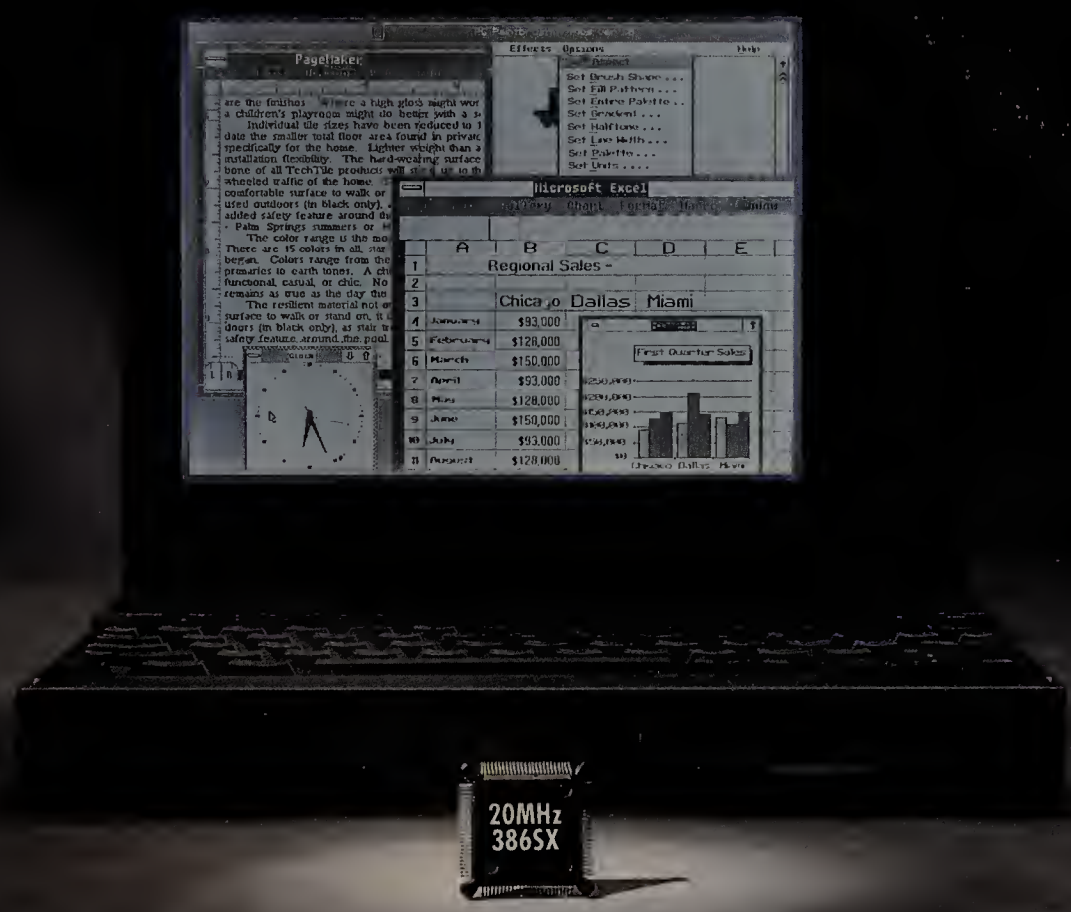

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Loading application software and file back-up are easy with the built-in 3.5″ floppy diskette drive. The internal battery lets you work up to three hours nonstop. Plus, the TravelMate 3000's full-function AT®-enhanced keyboard lets you do it in comfort.

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SatisFAXtion Board

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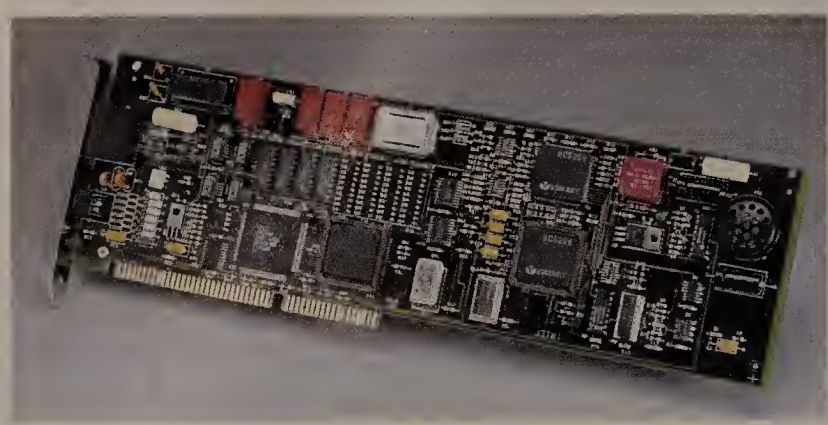

The SatisFAXtion board lets you fax files at 9600 bps from within an application just by hot-keying a pop-up menu. You also get an on-board 2400-bps modem with MNP Level 5 error correction/compression.

Using a fax board just got easier. SatisFAXtion, Intel PCED's new fax/modem combo, makes sending a fax from your PC almost as painless as printing a file—and sweetens the deal with good performance and a low price.

SatisFAXtion lets you send files at 9600 bps from within any application that supports an Epson FX85 printer merely by using a menu that you pop up with a user-definable hot key. You enter the name and phone number of the recipient in the dialog box, or you can choose a name from a phone book of up to 100 entries. In the past, if your application didn't support the Intel/DCA Communications Applications Specification (CAS), you had to exit the application and load special fax software.

The board preserves Epson fonts and formats in transmission, and standard *Windows* screen fonts, and its on-board processor and 128K of RAM ensure that your other work won't suffer a slowdown.

SatisFAXtion lets you specify a date and time for transmission, send faxes to a distribution list, and attach logos, signatures, or a cover sheet. Another unobtrusive dialog box pops up to tell you whether the fax transmission was successful or to alert you to an incoming fax.

The board's memory-resident software requires 66K, but 53K's worth runs in expanded memory if you have EMS 4.0. A separate, nonresident program, *Fax*, lets you maintain your phone book, read the activity log, and view and print stored faxes.

For sending nonfax files, SatisFAXtion includes an on-board 2400-bps modem with MNP Level 5 error correction/compression that can boost some transmissions to 4800 bps. SatisFAXtion's modem works with any standard communications software or modem, but SatisFAXtion can send binary data files at 9600 bps only to fax machines or to PCs equipped with a SatisFAXtion board, Intel's Connection CoProcessor, or another CAS-compatible fax board.

SatisFAXtion list prices are $499 for the AT bus version and $549 for an IBM Micro Channel, well below the $890 you would have paid for the first-generation Connection CoProcessor, which will gradually be phased out. SatisFAXtion requires DOS 3.0 or a later version, 640K of RAM, 1MB of disk storage, and a single 8-bit slot. —*Judy Heim*

IN BRIEF

SatisFAXtion lets you send and receive background faxes from within any application that can print to an Epson FX85 printer.

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For a quick look at your portfolio history, *Quicken* displays the price, cost, shares, current value, and paper gain or loss for each security for a specified date. Another *MYM* feature new to *Quicken* is a direct link to the CheckFree electronic funds-transfer service. For $9 a month, you can upload the checks you've written in *Quicken* to CheckFree and save the stamps and stamp-licking. While CheckFree transfers the needed funds to pay your bills, you can take advantage of *Quicken*'s expanded reporting features to create reports on your income and outgo. And *Quicken 4.0* tracks tax-related income and expenses that can be transferred to popular tax-preparation programs such as ChipSoft's *TurboTax*.

Quicken's menu systems are so intuitive, you should be able to learn and use them without referring to the online help, let alone the manuals. *Quicken 4.0* has even gained an auto-completion feature; you need only type in the first few letters of a data entry—such as the payee on a check—and *Quicken* will search its files to complete the rest of the entry for you. Like *Quicken 3.0*, *Quicken 4.0* has a suggested retail price of $59.95 and comes with free, unlimited technical support. *Quicken 4.0* requires 320K of RAM with DOS 2.0 or 384K with DOS 3.0 or a later version, and a single floppy drive. —*Roberta Furger*

IN BRIEF

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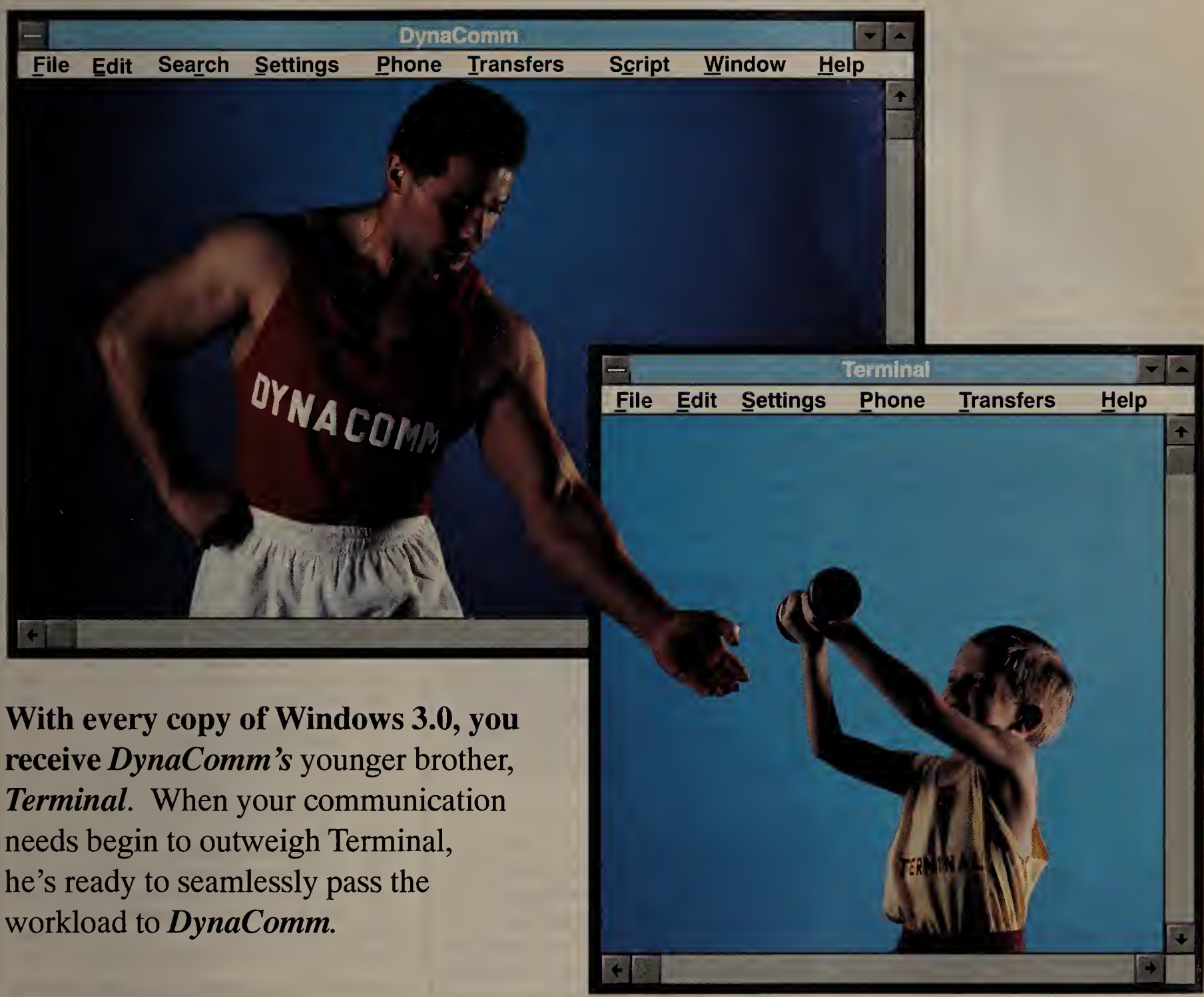

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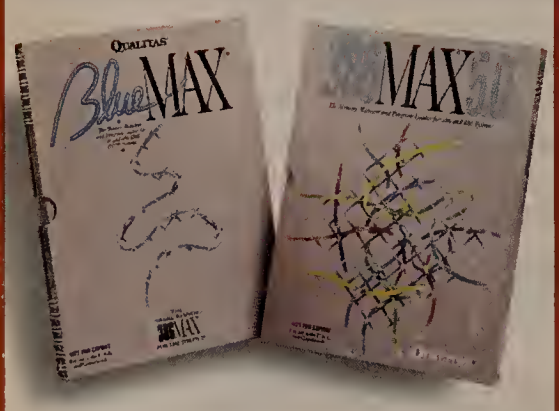

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6242 ▣Quattro Pro 2.0 . . . . . 339.
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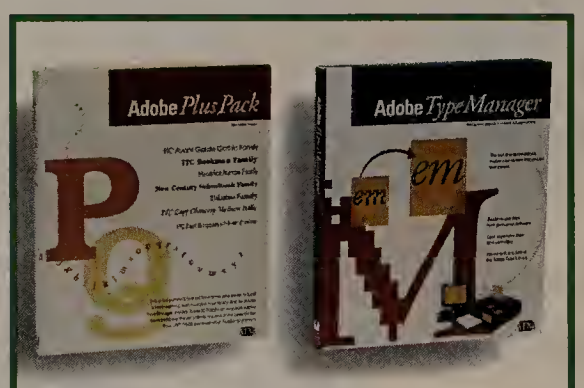

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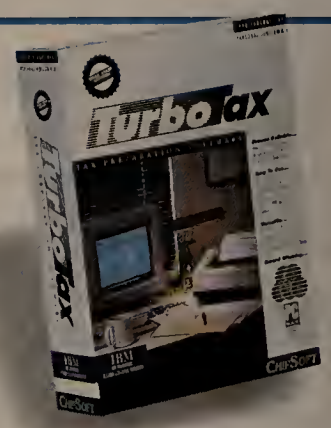

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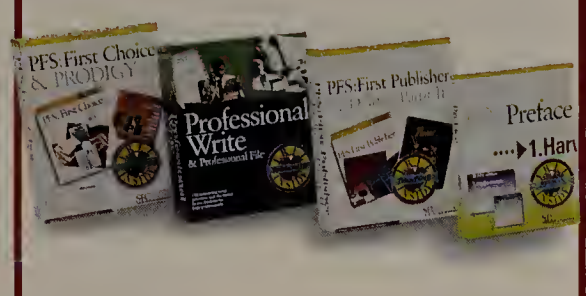

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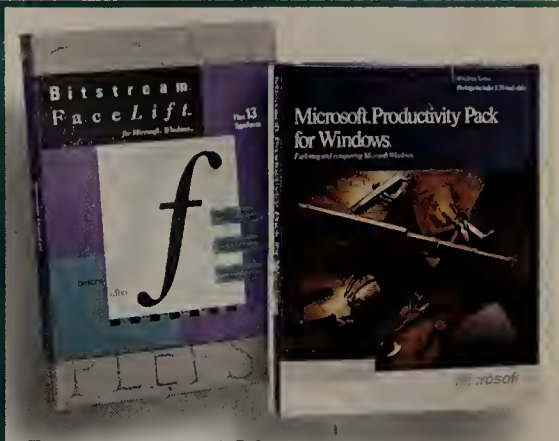

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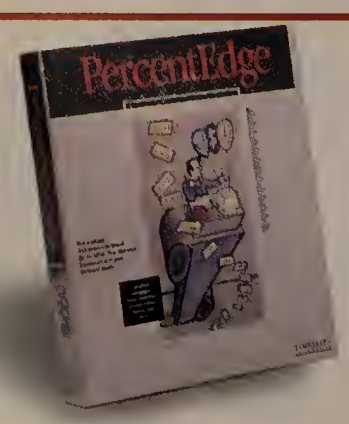

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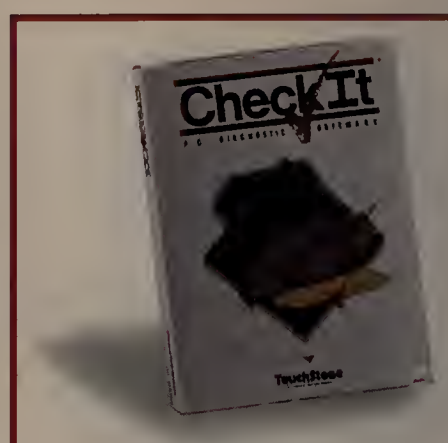

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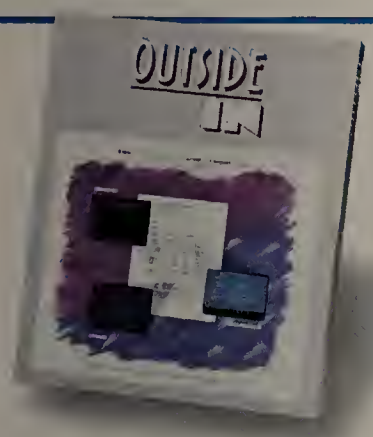

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6029 Trackman *(Trackball) serial* 85. *bus* 89.
4297 ScanMan Plus *(hand scanner)* . . . 185.
7975 ScanMan 256 . . . . . 319.

Micron Technology ... 2 years
7595 2 Meg Expansion for HP LaserJet IIP or III . . . . . 165.
7012 Beyond Memory Board for PS/2 Model 70 *(2 Meg)* . . . . . 169.

Microsoft ... lifetime
7597 Microsoft Mouse. . . . . 89.
2897 Mouse with Paintbrush . . . . . 109.
2898 Mouse with Windows 3.0 . . . . . 149.

Insight Development ... NCP
8320 ▣ *PrinTools 1.0*–Utilities for the HP LaserJet, DeskJet & compatibiles. Includes Spooler, Screen Dump, Screen Capture, SetUp, Plot with HPGL/2 support, and Help utilities . . . . . $85.

MicroSpeed ... 1 year
PC-TRAC Trackball
6007 *serial*. . . . . 75. 6008 *bus*. . . . . 89.
7271 *Inport* . . . . . 79. 6330 *PS/2* . . . . . 79.

Mouse Systems ... lifetime
5997 Trackball *(1 yr. wrnty.) serial* 75. *bus* 85.
7878 PC Mouse III. . . . . 99.

NEC ... 2 years
4799 Multisync 2A *(VGA Monitor)* . . . . . 499.
5085 Multisync 3D Monitor . . . . . 689.

Orchid Technologies ... 4 years
7512 ProDesigner VGA II *(1024 x 768)*. . 299.
7888 ProDesigner/e *(256k)* . . . . . 209.

Boca Research ... 5 years
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Pacific Data Products ... 1 year
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7158 Pacific Page 4.0 *(for LaserJet IIP/III)* 379.
6834 Pacific Page with free 2 Meg Memory Board *(for LaserJet II)* . . . 379.

Practical Peripherals ... 5 years
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5286 2400 Baud Int. MNP Modem *(Lev. 5)* 175.
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8132 PM2400 Pocket Modem . . . . . 99.
7934 PM9600SA. . . . . 489.

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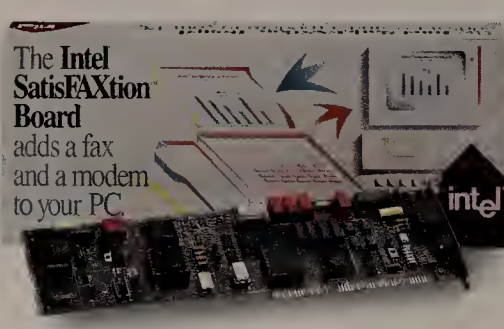

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PC Chronicles.

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(Or, how we wrote the book on PC mail order.)

Truth tends to be stranger than fiction in the telltail town of Marlow, NH (pop. 564). That's why you'll often find the local color gathered 'round the ancient sage as he recounts in vivid detail how our forest glade was transformed into a PC paradise.

For, in days of yore, buying software and peripherals by mail was a perilous task, fraught with danger and uncertainty. Only those well versed in the black arts dared risk such unpredictable delivery and uncertain compatibility.

Then one day the enlightened Order of the Connection appeared majestically on the scene, bringing the classic virtues of toll-free tech support, prompt shipping, and way-under-retail prices to the brave new world of the IBM PC. Since that glorious day our humble home has served as a beacon of light to noble users in cottages, condos, and corporations throughout America.

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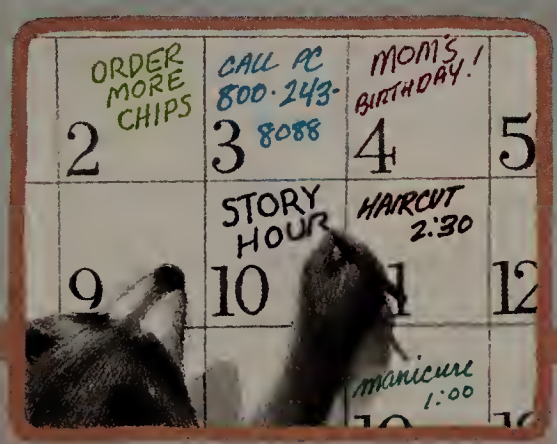
It's not every day of the week you get offered your very own 1991 PC Connection Calendar. This very timely offer includes 13 classic illustrations of our legendary mascots, all your favorite holidays, and fascinating historical facts about the fiefdom of Marlow, NH. This wondrous wall calendar is free to everyone who places an order of $750 or more between now and February 28.



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CompuAdd 333, 333T

Low-Cost 386s With Hot Technology

Since the first 33-MHz 386 PCs debuted in spring 1989, their price tags have tumbled quickly. Riding the downward slope of this price curve, CompuAdd has a pair of new entries that come in at about half the cost of the 33-MHz pioneers. Both units employ the company's inventive "hot-slot" architecture.

The CompuAdd 333 desktop and 333T tower dedicate two of their six, 16-bit I/O slots to 12.5-MHz operation instead of the usual 8 MHz. These special slots are designed for the company's proprietary HardCache/ESDI hard disk controller card and Hi-Rez VGA card. CompuAdd claims hard disk data transfer improves by 15 percent and video throughput by 6 percent.

Even better, both 333 models feature a 33-MHz memory slot dedicated to a 640K static RAM card. This setup is designed to let DOS and DOS applications run with true zero-wait-state performance—up to 6 percent faster than standard memory caching, according to CompuAdd.

The machines come with their 386 processors on CPU cards, which contain 4MB of memory (expandable to 16MB) and 64K of cache memory. You get the usual number of ports and a choice of 1.2MB 5¼-inch or 1.44MB floppy drives. However, both *Windows 3.0* and DOS 4.01 are loaded on systems with hard disks, and the warranty coverage includes a year of on-site service.

The desktop 333 holds up to three floppy or tape drives plus two half-height hard drives, while the 333T tower unit accepts up to four floppy/tape drives and five hard drives.

The floppy-only Model 333 sells for $2595. An enhanced model with a 150MB ESDI drive, a HardCache/ESDI card with 1MB of cache, a 14-inch VGA monitor, a Hi-Rez VGA card, and a static RAM board costs $5795. Comparable tower models are priced at $2775 and $5975, respectively. —*Eric Bender*

IN BRIEF

CompuAdd's 33-MHz 386 models offer solid pricing and performance-enhancing "hot slots."

CompuAdd
12303 Technology Blvd.
Austin, TX 78727
800/456-3116,
512/250-2070 (fax)
Reader service no. 620

Premium II 386SX/20

AST's Downsized, Upgradable SX

AST Research is doing its part in the never-ending push toward smaller and faster with the Premium II 386SX/20, a 20-MHz SX system with a footprint that's 20 percent smaller and performance 25 percent faster than the 16-MHz Premium 386SX/16. You don't pay more for the extra capabilities—instead, AST has lowered the prices of its 16-MHz models by $300.

In place of VGA, the 386SX/20 has a super-VGA adapter (with 800 by 600 resolution) on the motherboard. Also built-in are two IDE connectors capable of controlling three floppy or tape drives, and two hard drives.

AST has downsized the 386SX/20 to 15½ by 16½ by 6¼ inches while preserving two 32-bit, two 16-bit, and one 8-bit expansion slots and support for five drive bays. Better yet, the 386SX/20 is part of a 386/486 line. AST's CUPID backplane architecture puts the CPU on a card so you can upgrade all the way to a 33-MHz 486. The card holds up to 16MB of RAM, and a 16K memory cache enhances processing performance.

You can get the 386SX/20 with a single 3½-inch or 5¼-inch drive for $2595. Adding a 28ms 40MB drive or 25ms 110MB drive bumps prices up to $3195 and $3695, respectively. The year-old 386SX/16 ships in the same configurations (but with 16-bit VGA on a board) for $300 less in each case. —*Mike Hogan*

IN BRIEF

AST's 386SX/20 proves that better things can come in smaller packages, giving you 25 percent faster processing at 16-MHz prices.

AST Research, Inc.
16215 Alton Pkwy.
Irvine, CA 92713-9658
714/727-4141,
714/727-9355 (fax)
Reader service no. 618

Sanyo MBC-17NB

Well-Rounded Flyweight Contender

If your office is a hotel room or an airplane seat for part of the week, you no longer need an extra piece of luggage to carry a laptop with a decent display, battery life, and storage. Notebooks that fit in a briefcase abound, and newcomer Sanyo has a good midrange alternative at a fair price.

Sanyo's MBC-17NB is a laptop with a lot to love. You get sharp VGA graphics and, unlike with some in its class, both a floppy and a 23ms 20MB hard disk. And at $2999, the 12.5-MHz 80C286-based Sanyo is less expensive than the CGA-equipped Compaq LTE/286 or Toshiba 1200XE.

At seven pounds, it's a pound or so heavier than some notebooks; and at 12¼ by 10 by 2 inches, the MBC-17NB stretches the limits of generally accepted notebook conventions. But it still fits in most briefcases without separating seams or shoulder cartilage.

The snap-off, nickel-cadmium battery has a 2-hour life and comes with an AC adapter/charger that recharges the battery in just an hour. Elsewhere, there's a spot for a $390, 2400-bps modem and a pair of memory-module sockets that let you boost the standard 1MB to a robust 5MB for $775. The MBC-17NB has no AT expansion slot or docking station, but the price is right. —*Mark Henricks*

IN BRIEF

The MBC-17NB has a good midrange feature set at a very reasonable price, although it adds a pound here and an inch there compared to most notebooks.

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PC Paintbrush IV Plus

Now you can scan, create, edit and dramatically enhance images. All with one program: the new PC Paintbrush IV Plus.™ It brings you all the power of ZSoft's PC Paintbrush IV™ – and builds in complete scanner control, large image support and other powerful pluses.

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Control your scanner from *within* PC Paintbrush IV Plus. Scan and edit full-page, black-and-white, gray-scale and color images with a 640K system. Rescale images (25 to 400 percent). And with the unique pre-scan feature, simply frame the precise area you want, then scan *only* that area at high resolution.

Image enhancement.

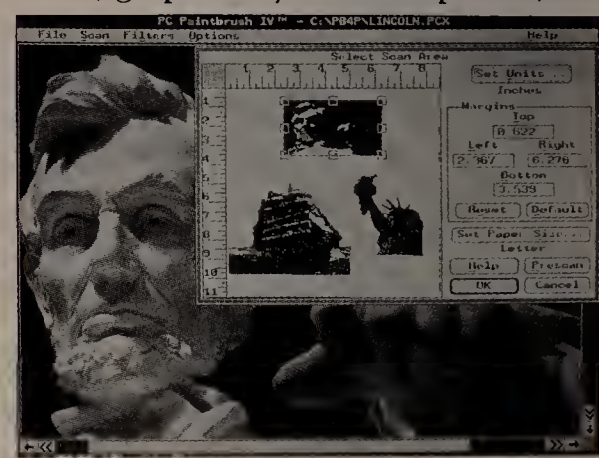
The new PC Paintbrush IV Plus is packed with innovations. New retouching features let you blend, lighten, darken, adjust contrast, change tints and blur portions of any image. New image processing functions let you automatically correct poor originals. It's like having a photo lab in your computer!

Persuasive presentations.

For compelling overheads, slides and documents, choose from a huge arsenal of features. For example, use the "tiling" feature to create 3-D effects and intricate textures. Automatically shadow, outline and graduate text for dynamic effects. Load and save PCX and TIFF images. Capture screens. You can even overlay two images.

Intuitive interface.

PC Paintbrush IV Plus is packed with convenience: Pull-down menus, customizable screen layouts, graphically labeled options,



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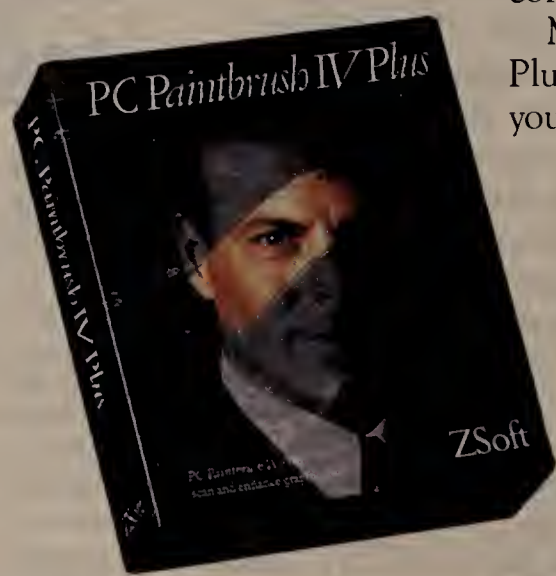

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UPDATE

New Versions of Your Favorite Products

QMS ColorScript 100 Model 10, Model 30i

QMS has lowered the price on its ColorScript 100 Model 10 $1000 to $8995 by reducing standard RAM to 5MB instead of 8MB.

QMS is making it easier to get into color PostScript laser printing by reducing the price on its ColorScript 100 Model 10 $1000 to $8995. The thermal transfer printer sports the same engine and case but now ships with 5MB of RAM instead of 8MB and includes the Hewlett-Packard Graphics Language. Also new is the ColorScript 100 Model 30i, which lists for $12,995 and has an internal SCSI controller for an add-on hard disk, compared to the regular $15,995 Model 30, which comes with an external SCSI controller and 20MB hard disk. QMS, One Magnum Pass, Mobile, AL 36618; 800/523-2696.

Reader service no. 637

HP NewWave Mail

Hewlett-Packard adds another facet to its *NewWave* object-oriented environment with an electronic mail capability. Now you can combine *NewWave* text, graphic, and spreadsheet elements into a file that you can send over a network simply by dragging it to the electronic mail icon and dropping it off. The $195 *NewWave Mail* searches the server data base until it finds your recipient and then alerts the user when the mail arrives in his or her mailbox. Hewlett-Packard, Customer Information Center, 19310 Pruneridge Ave., Cupertino, CA 95014; 800/752-0900.

Reader service no. 642

DeScribe—Word Publisher 2.0

A new network-oriented version of the OS/2 word processor, *DeScribe—Word Publisher* provides Dynamic Data Exchange between *DeScribe* documents and any other OS/2 file, enabling you to incorporate, for example, a spreadsheet range in a *DeScribe* document that can be updated in both files from either file. System administrators can define system dictionaries, layouts, and macros to be shared by all users on a network. The server edition of *DeScribe—Word Publisher 2.0* retails for $595, while the client version of the program sells for $250. DeScribe, Inc., 4047 N. Freeway Blvd., Sacramento, CA 95834; 916/646-1111, 916/923-3447 (fax).

Reader service no. 636

SixPak 286

AST Research is offering an unpopulated version of its SixPak 286 multifunction board for $169 and has reduced the prices of its 512K and 2MB versions of the AT-compatible board to $295 and $595, respectively. The SixPak 286, which can be populated with up to 4MB of RAM using 256K or 1MB SIMMs, provides EMS 4.0 hardware support, also configurable as extended memory for protected-mode operating environments such as *Windows 3.0*. Utility software for print spooling and the creation of a RAM disk is included. AST Research Inc., 16215 Alton Pkwy., Irvine, CA 92713-9658; 714/727-4141, 714/727-9355 (fax).

Reader service no. 638

TMI Key Results Advanced

The just-released U.S. version of Europe's personal/group information manager, *TMI Key Results Advanced*, offers 130 improvements, including a new macro programming language for expediting repetitive operations and more reporting and import/export options. The $395 network-capable PIM lets you append multiple notes or other elements to a single item or vice versa, and you can now run *TMI Key Results Advanced* memory-resident and shell out to DOS when necessary. TMI (North America) Inc., 185 Berry St. #6504, San Francisco, CA 94107; 800/541-3800, 415/957-1133, 415/882-4960 (fax).

Reader service no. 639

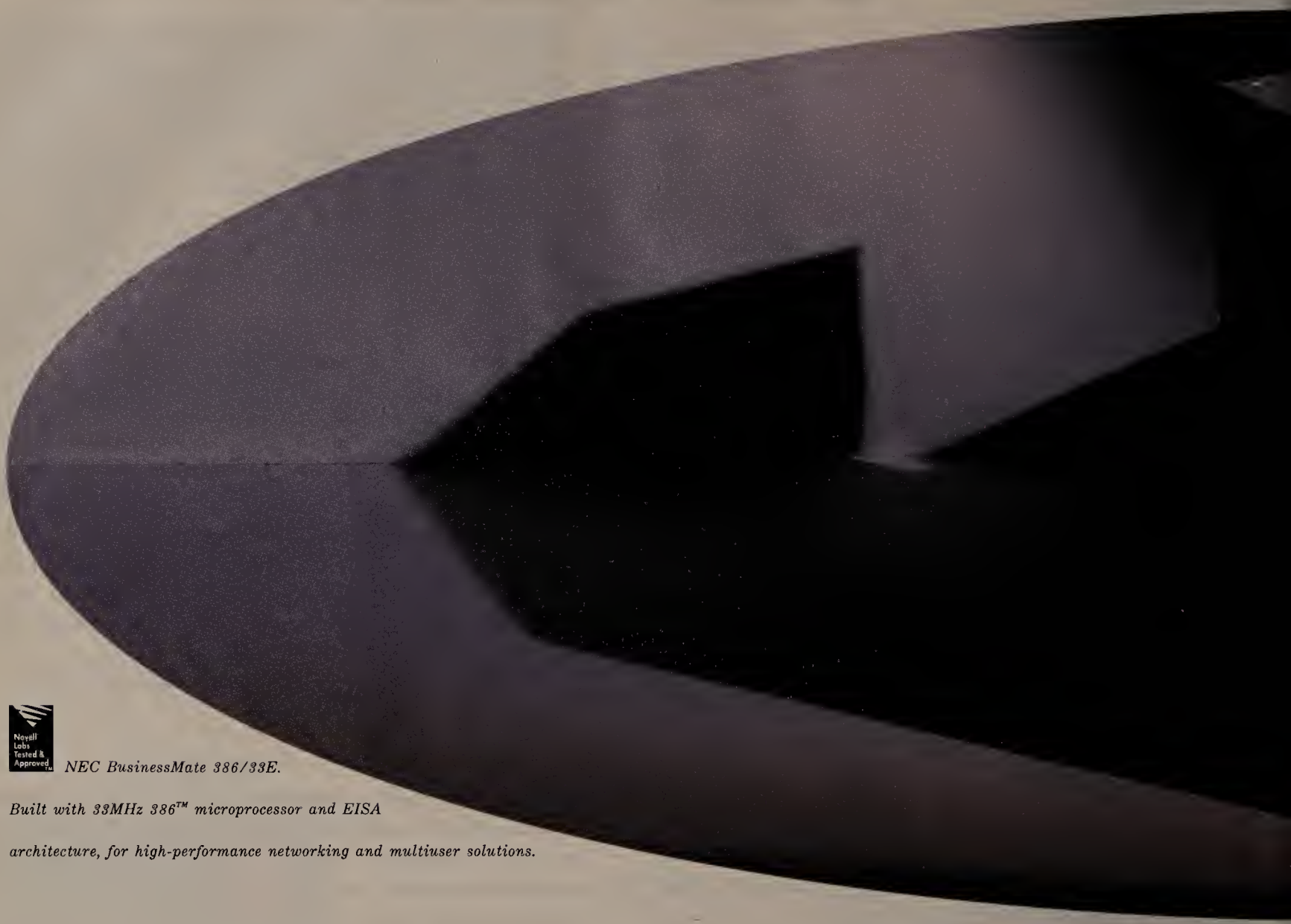
OfficeWriter 6.2

Version 6.2 of *OfficeWriter*, Software Publishing Corporation's dedicated document-processing program, includes enhanced macro capabilities that let you use programming logic when creating a macro for interapplication operations such as retrieving data from a data base, performing calculations in a spreadsheet, and exporting the results to a form letter. *OfficeWriter 6.2* now has a wider range of foreign-language dictionaries and import/export options, and there's support for more than 200 printers. Upgrades to the $495 program are $45 from previous version. Software Publishing Corp., 1901 Landings Dr., Mountain View, CA 94039-7210; 415/962-8910.

Reader service no. 640

For more information about any product, contact the manufacturer or circle the number on the reader service card.

Perhaps its best fea



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ure is its future.

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NEC

Circle 182 on reader service card

Easy Fonts for Great-Looking Documents

Sure, you can buy a $5000 PostScript printer to get superb scalable fonts. But a $100 font-generator like Adobe Type Manager can do nearly as well using the printer you have right now.

George Campbell

There are two types of business document: the kind people read, and the kind they throw away. The better your documents look, the more likely they'll end up on your customer's desk instead of in the dumpster.

If all you print are in-house drafts or simple correspondence, your printer's typewriterlike resident fonts are probably all you'll need. But use these fonts in presentations, reports, or brochures, and your documents become instantly disposable. To give your pages that professional edge, you'll need a full range of typefaces, sizes, and styles.

There are plenty of ways to overcome your laser's limited font options—invest in a PostScript or other scalable-font printer, buy a plug-in cartridge, or use bitmapped soft fonts (see the sidebar "Exercising Your Font Options"). But for the greatest flexibility at the lowest price, you can't beat a scalable-font generator.

Font generators let you select a typeface at your PC, scale it to the proper size, and then send it to the printer. If you use *Windows* or *Ventura Publisher GEM/DOS Edition*, you can produce high-quality screen fonts that match the ones coming out of your printer, which makes designing and editing documents a lot easier. Best of all, these new "on-the-fly" packages are as easy to use as a PostScript printer, at a fraction of the price.

This review scrutinizes seven scalable-font generators, putting them to the test with a variety of applications and output devices. The result is two Best Buys: For *Windows 3.0* users, *Adobe Type Manager* wins the trophy, while Atech's *Publisher's Powerpak* is the Best Buy for users of DOS programs like *Ventura Publisher* and *WordPerfect*.

Fonts as You Like Them

The programs reviewed here fall into two camps: traditional "while-you-wait" font generators, and new on-the-

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The better your docu-
likely they'll end up
sk instead of in the
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ll all you print are in-house drafts or
simple correspondence, your printer's
typewriter-like resident fonts are probably
all you'll need. But use these fonts inside
resentations, reports, or brochures, and
our documents become instantly dispos-
ble. To give your pages that professional
e, you'll need a full range of typefaces,
sizes, and styles
There are plenty of ways to overcome
your laser's limited font options—from Post-
Script and other scalable-font printers, to
plug-in cartridges, to bit-mapped soft fonts.
But for the greatest flexibility at the lowest

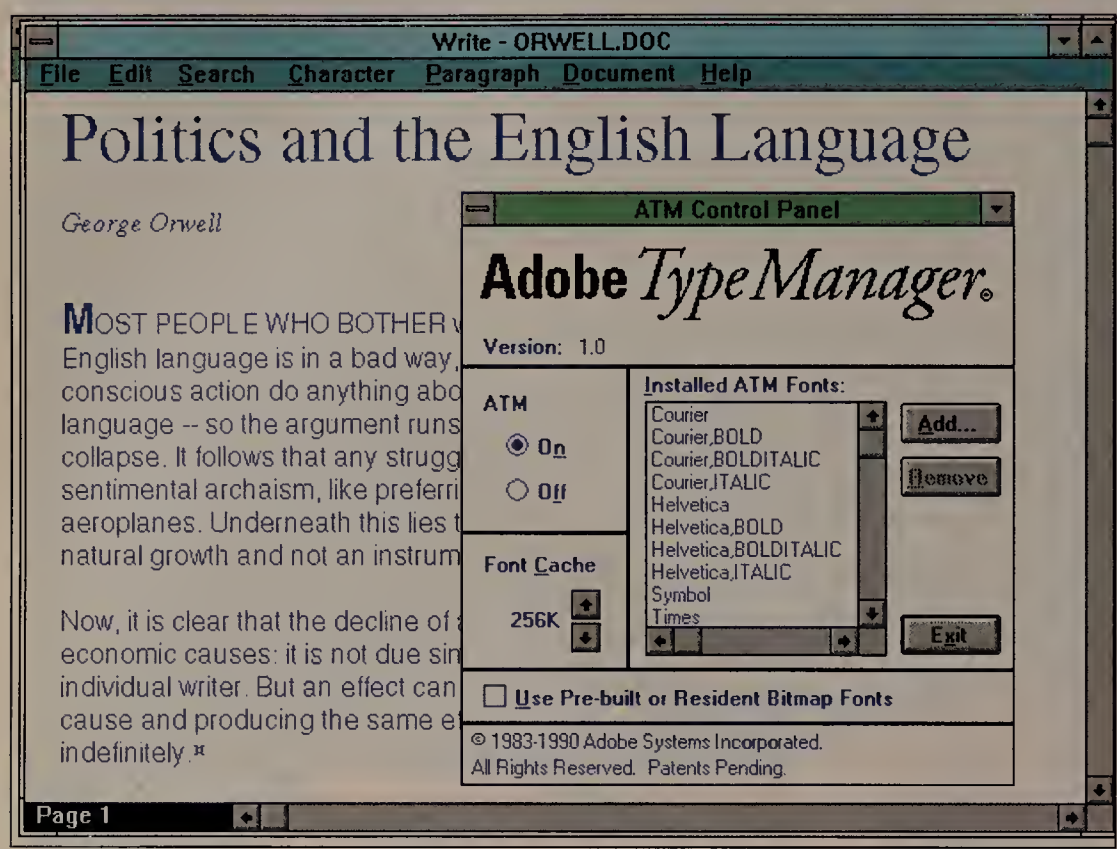
RON CHAN

fly packages. The first group of programs, like Bitstream's *Fontware*, Z-Soft's *SoftType*, and Agfa's *Type Director*, require you to generate the fonts you need and store them on your hard disk before creating your document. These fonts are then downloaded at print time—a tedious process that can quickly soak up printer RAM.

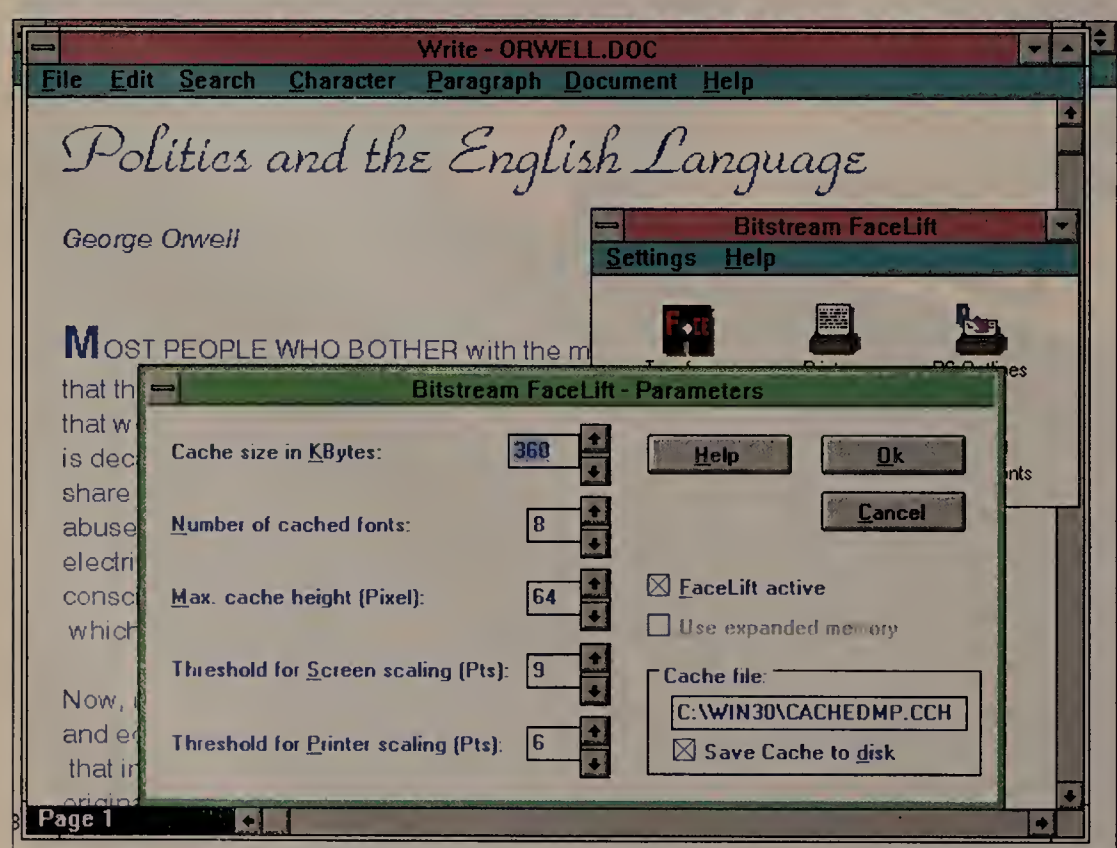
When you want to create a new font (say, 16-point Helvetica instead of 14-point), you have to exit your application and repeat the process. It's a hassle, and the printer font files are disk hogs: A simple 12-point font can gobble up 22K of disk space, a 60-point font nearly half a megabyte. (Fortunately, you can conserve disk space by creating reduced character sets—say, only those letters you need to print at 60 points.) The while-you-wait programs also create separate screen font files, which must fit within *Windows'* and *Ventura's* 64K file-size limit. If you try to create a large screen font that takes up more than 64K, the font program will refuse to generate it.

With an on-the-fly font scaler, you simply install the package for your application and select fonts as you go. The program automatically generates screen fonts up to 127 points in size or larger (depending on the application), then sends a graphic image of the entire page to the printer at print time. There are no huge font files to clutter your hard disk, and no fonts to download, which makes these packages ideal for networked printers. *Adobe Type Manager (ATM)*, Bitstream's *FaceLift*, and Atech's *Publisher's Powerpak* create screen and printer fonts as you work. (Zenographics' *SuperPrint 1.0* requires you to generate screen fonts manually—a limitation corrected in upcoming version 1.1.)

Clearly, the on-the-fly programs are preferable, but they work with only a handful of applications. If your programs aren't supported, you'll have to use a traditional program like *Fontware*. But if you use *Windows*, *Ventura Publisher*, or other supported programs, our Best Buys, *ATM* and *Powerpak*, are the only way to fly.



Adobe Type Manager's Control Panel makes it easy to add and delete fonts, increase the font cache size, and turn the program on or off. Otherwise, just install the program and forget about it—ATM works transparently in the background.



FaceLift gives you broad control over parameters such as the minimum and maximum size of screen fonts, but the multiple icons make its interface a little confusing.

Adobe Type Manager 1.0

PROS: Great-looking output, huge font library, transparent operation inside applications

CONS: Limited to Windows 3.0 applications

PostScript finally has a baby brother, and it's a prodigy. Even though the $99 *Adobe Type Manager* is limited to *Win-*

On-the-Fly Fonts Fare Well

Font packages like Best Buy winners Adobe Type Manager and Publisher's Powerpak speed printing and conserve disk space by generating fonts as you type.

● Yes
○ No
◒ Deficient

	Adobe Type Manager 1.0	FaceLift 1.0	Fontware	Publisher's Powerpak	SoftType 1.01	SuperPrint 1.0	Type Director 2.0
Standard features							
Price	$99	$99	varies[1]	$79.95	$199	$195	$99
Minimum hard disk space required	750K	1.5MB	1.2MB[2]	500K	1MB[2]	2MB	1.75MB[2]
Minimum RAM required	1MB[3]	640K[3]	512K	640K[3]	640K[3]	640K[3]	640K
Font options							
Number of font outlines included	13	13	varies[1]	30	63	22	8
Font sizes available (in paints)	4–127[1]	4–127[1]	2–144[1]	4–1000[1]	1–72	4–127[1]	4–200[4]
Number of additional typefaces available from manufacturer	700+	52[5]	52[5]	86	none	unlimited[6]	176
Average cost per font outline[7]	$8.49	$5.79	n/a	$2.22	$3.16[8]	$7.45	$22.86
Accepts Type 1 fonts	●	○	○	●	○	●	○
Accepts third-party font outlines	●	○	○	●	○	●	●
On-the-fly screen and printer fonts	●	●	○	●	○	◒[9]	○
Creates reduced character set	●	○	●	●	●	●	●
Creates special font effects	●	○	○	●[10]	●	○	○
Software support							
Windows 3.0	●	●	●	●	●	●	●
Font manager runs under Windows	●	●	○	●	●	●	○
WordPerfect	●	○	●	●	○	○	●
Microsoft Word	●	○	●	●	○	○	●
WordStar	●	○	●	●	○	○	●
Ventura Publisher (GEM/DOS)	●	○	●	●	●	○	●
Printer support							
HP LaserJet II, IID, IIP	●	●	●	●	●	●	●
HP LaserJet III, IIID	●	●	●	●	○	●	●
HP DeskJet (all models)	●	●	◒[1]	●	○	●	◒[11]
HP PaintJet	●	●	◒[1]	●	○	●	●
Epson-compatible 9-pin	●	●	◒[1]	●	●	○	●
Epson-compatible 24-pin	●	●	◒[1]	●	●	○	●
PostScript devices	●	●	●	●[12]	●	○	○
	BEST BUY			BEST BUY			

[1] Varies according to application.
[2] Space needed by program files; font files will require more.
[3] 2MB recommended for Windows versions.
[4] Up to 999.75 on HP LaserJet III.
[5] Each set includes four font outlines.
[6] SuperPrint can read multiple formats for outlines.
[7] Average based on cost of package plus upgrade to standard 35 PostScript font outlines.
[8] Not all PostScript outlines are available.
[9] Version 1.0 creates printer fonts only.
[10] Special effects included as outlines.
[11] DeskJet Plus and later.
[12] Requires separate utility.

dows 3.0 applications, its transparent operation, huge library of available fonts, and excellent laser print quality easily earn it our Best Buy.

ATM installs in a single step, which takes about 10 minutes; the program needs just 750K of disk space. Using the package is child's play: Just select the desired font and size. *Type Manager* works in the background, creating screen and printer fonts as you work. Adding new font outlines couldn't be

simpler. You slip the font disk into the drive, click the Add button in *ATM*'s Control Panel, and select the outlines you want.

ATM's 13 base typefaces include several styles of Times Roman, Helvetica, and Courier, plus symbol outlines. A $198 *Plus Pack* supplies the rest of PostScript's 35 standard fonts. But why stop there? You can choose from thousands of outlines available from Adobe and other vendors.

Laser and ink jet output are exemplary, but *ATM*'s dot matrix performance can't match *Powerpak*'s. Screen fonts match the printer's exactly and appear instantly—unlike with *FaceLift*, you won't notice any delay as you type. Since *ATM* supports PostScript output devices, creating a file to send to a typesetter is a snap.

For *Windows 3.0* applications, *ATM* is an unbeatable package. This talented youngster may be the best reason yet for users of the GEM-based *Ventura Publisher* to switch to the *Windows* version.

FaceLift 1.0

PROS: High-quality laser output, transparent on-the-fly operation

CONS: Sluggish screen fonts, limited font library

Bitstream's $99 *FaceLift 1.0* bears more than a cosmetic resemblance to *Adobe Type Manager*. Both are limited to *Windows* applications and give you the same gorgeous output and easy on-the-fly operation. *FaceLift* is a good deal, but slower screen fonts, a more complicated interface, and fewer available outlines make it a runner-up in the *Windows* beauty contest.

FaceLift's installation is a little knottier than *ATM*'s, requiring you to copy the font outlines after installing the basic program. Unlike *ATM*, with its single icon, the *FaceLift* font manager employs several icons, making it just a touch confusing. And the program requires about 1.5MB of disk space—twice as much as *ATM*.

FaceLift comes with 13 font outlines, including Dutch and Swiss in 4 styles, 3 script fonts, Cooper Black, and a fixed-space Helvetica. You can purchase a 35-font PostScript companion package for $179 or any of 52 other font sets for $129 each. But *FaceLift* accepts only Bitstream fonts, and fonts shipped with older versions of Bitstream's *Fontware* aren't compatible. Fortunately, you can upgrade your older fonts for a minimal charge.

BUYING SMART: FONT SHOPPING TIPS

When you buy font softwore, the first thing to think obout is whether it works with your applicotions and your printer. Beyond thot, it becomes o question of how well it works. Is output crisp ond reodoble? Do the screen fonts motch your printed output? How eosy is the pockoge to use? Consider the following foctors.

Printer and Software Support

Obviously, o font pockoge must be compotible with your applicotions ond printer. *Adobe Type Monoger, SuperPrint,* ond *FaceLift* are *Windows*-only opplicotions. If you need fonts for DOS progroms like *Word, WordPerfect,* or *Venturo Publisher GEM/DOS Edition,* your best bet is *Publisher's Powerpak*. As for output devices, *ATM* ond *FoceLift* support the widest ronge of printers, from Epson 9-pins to PostScript mochines. PostScript support is importont if you plan to print finol output on o PostScript device, such os a high-resolution imogesetter.

Font Quality

Text should print out crisply, free of jagged edges, with properly spoced letters regordless of font size. Screen fonts must motch the printed output—o requirement the old-style font generators can't olwoys meet. All these programs produced excellent output on loser printers—the most crucial output device—ond most handled ink jets with oplomb, but only *Publisher's Powerpok* churned out high-quality fonts on loser, ink jet, ond dot matrix printers.

Ease of Use

You should be able to install your font pockoge in o single step, using o minimum of disk spoce, then forget obout it. The progrom should operote transporently—letting you select fonts and add new outlines from inside your opplication—ond hove o negligible impoct on both print ond disploy speed. Of the on-the-fly pockages, *ATM* is the most trosporent in instollotion and use. The trodiional font generators, which require lots of hard disk room ond separate steps for creating and downlooding fonts, just con't cut it.

Font Options

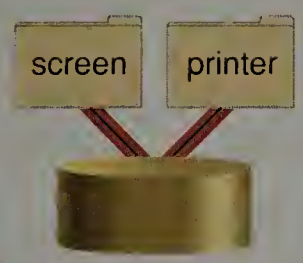
Demond o minimum storter set of 13 font outlines, plus a wide ossortment of inexpensive font odd-ons. *SoftType* comes with 63 standard typefaces—the most offered by any pockage—but there's no woy to add more. Most of the others limit you to their monufacturer's proprietory fonts, but with *ATM* thot meons occess to thousonds of Type 1 PostScript fonts. Tops here is *SuperPrint,* which occepts fonts from Adobe, Bitstreom, Agfo, ond other mojor type vendors. —G. C.

How Font Generators Work

On-the-fly font generators are faster and easier to use than the while-you-wait kind. Here's why.

While you wait...

1. Using the fant package, yau create fants, specifying typeface and paint size (far example, Helvetica 14 paint).



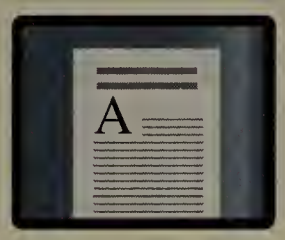
2. The pragram stares printer and screen versians af the fants in separate files an the hard disk.

3. Only after the fants have been specified and stared an disk da they appear in yaur applicatian.

4. Befare printing the page, the system dawnlaads printer fants ta printer memory.

...or on the fly

1. After installing the fant package, yau laad an applicatian.



2. Yau select fants fram inside the applicatian; they are generated instantly in the point size selected and stored in memory, not on the hard disk.

3. At print time, the fant saftware sends an image af the entire page ta the printer withaut requiring the time ta dawnlaad fants.

Printer font quality is first-rate on LaserJets and ink jets, but when it comes to dot matrix output, *FaceLift* sags. Its print speed is as fast as *ATM*'s, but you'll notice a lag as the program produces screen fonts. *FaceLift* supports a broad range of printers, from 9-pins to PostScript devices, and a separate version announced at press time supports *WordPerfect.*

In operation and print quality, *FaceLift* comes within a nose of *ATM.* But its more elaborate interface, lethargic screen fonts, and limited font library keep it a solid second choice for *Windows* users.

Fontware

PROS: Inexpensive, braad applicatian suppart

CONS: Slaw, lacks an-the-fly aperatian, hard disk hag, ragged dat matrix autput

Fontware has been around for years—and it's showing its age. Available mainly via coupons included with applications such as *Microsoft Word, Fontware* is widely supported and generally doesn't cost more than $30. But it takes a heavy toll on disk space, prints painfully slowly, and provides poor-quality output on low-end printers. If *Fontware* is the only package that works with your application, your decision has already been made. Otherwise, you'll do better to look elsewhere.

Fontware supports programs ranging from *WordStar 5.5* to Lotus's *1-2-3,* but each application requires a separate installation kit. Fortunately, the kits can reside in the same directory, sharing common files. However, you'll still need 1.2MB of disk space before you can even begin to create fonts.

Font generation speed is glacial. Creating *Fontware*'s suggested set of 8- to 24-point Dutch and Swiss fonts for *Ventura Publisher* took over an hour and gobbled up over 5MB of disk space. And because you have to download fonts at print time, you'll have to wait longer for your output.

The typefaces included with *Fontware* kits vary, but you'll always get Dutch and Swiss, and usually at least one other outline. You can purchase any of Bitstream's 52 other font packages, but *Fontware* can't use outlines from other sources.

Fontware's print quality on lasers and ink jets is solid, but its dot matrix output is ragged and unusable in large sizes. Screen fonts were good but limited in size to about 36 points.

Given *Publisher's Powerpak*'s on-the-fly support for major DOS applications and *ATM*'s superb *Windows* support, there's little reason to opt for the antiquated *Fontware.*

HARRY AUNG

EXERCISING YOUR FONT OPTIONS

Daniel Tynan

Freedom of choice can be an awful thing. Take font options, for exomple. There are literally dozens of ways to odd high-quolity typefaces to your documents; the solution you choose depends on the kind and volume of documents you produce ond how much money you wont to spend. Here's a rundown of your font options, from low-cost soft fonts to posh printers.

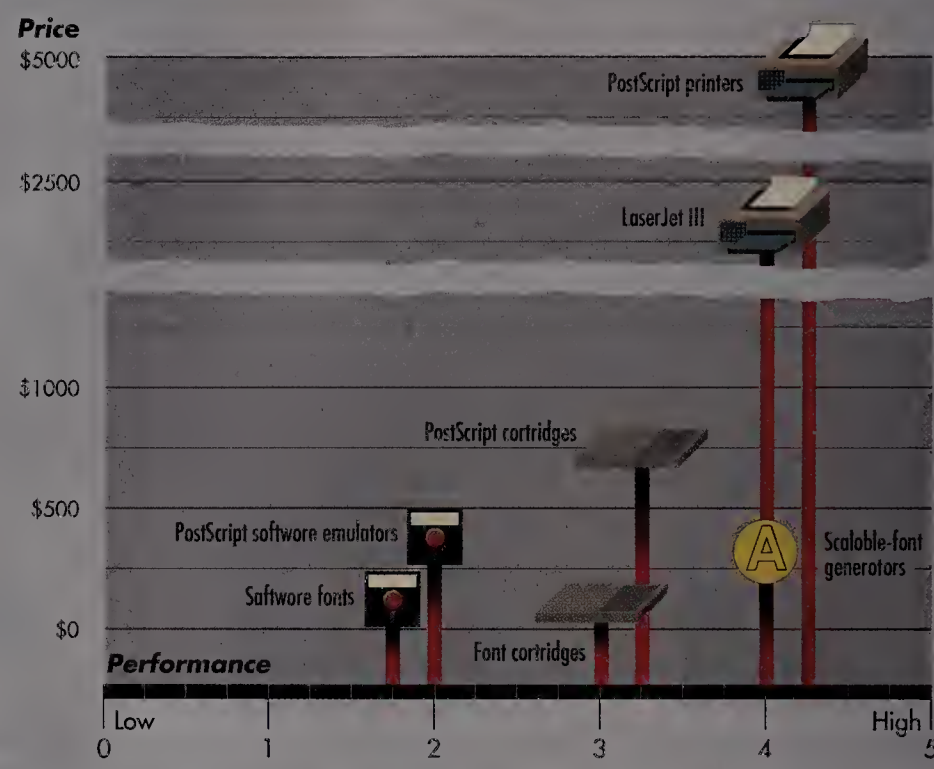
Resident Fonts

These ore fonts that come with your printer. Their moin odvontage is that you don't hove to think obout them—just select one from inside your opplication and print. But unless you own o scalable-font device like a PostScript printer, font selection is usuolly limited to o handful of standord typefaces at 8 to 12 points.

Font Cartridges

For enhancing simple text documents or adding small fonts so you con print big spreodsheets, cortridges are an easy option. Cartridge fonts come as either fixed-size bit maps or scoloble font outlines and ronge in price from $100 to $300. They're easy to instoll ond use—just plug the cortridge into your printer. They're also supported by almost all applications. The trouble is, the bit-mopped cortridges ore limited to a hondful of fonts, ond the others work only with scoloble-font printers. Another drowbock: Font for font, they're foirly expensive.

Fonts: Price Versus Performance



Scalable-font generators give you a lot of bang for only a few bucks. Note: Performance encompasses ease of access to fonts, typical number of standard typefaces, and relative speed of font generation. Prices indicated represent the median available price for each product.

Publisher's Powerpak

PROS: Support for major DOS applications, special font effects, sharp dot matrix output

CONS: Limited font options, requires separate versions for DOS and Windows applications

Atech's *Publisher's Powerpak* isn't very well known, but it should be. Like *ATM*, it features high-quality fonts and on-the-fly font scaling, plus the finest dot matrix output you can get. Best of all, it offers versions supporting a number of major DOS applications for about $80 apiece. *Windows* users will likely prefer *ATM*'s smoother laser output and wider choice of typefaces options, but for *Ventura* and *WordPerfect* users, *Powerpak* is the Best Buy.

Powerpak comes in three flavors: one for *Windows 3.0*, one for *Ventura Publisher*, and one that supports *Microsoft Word*, *Microsoft Works*, *WordPerfect*, and *PlanPerfect*. Since *Ventura* doesn't support on-the-fly screen fonts, you'll have to generate screen fonts manually. For the other DOS applications, *Powerpak* supports printer fonts only.

Powerpak installs quickly and easily in just 500K of disk space, but multiple versions can't share common files or outlines. Another drawback: *WordPerfect* users must give up background printing. *Powerpak* generates fonts as quickly as *ATM* does, but its LaserJet and ink jet fonts aren't as smooth. On the other hand, its high-resolution dot matrix output is the class act of the roundup.

Atech's font names are unusual.

HARRY AUNG

Software Fonts

At one time, soft fonts were a godsend for users trapped by their printer's limited font horizons; now they're mostly useful when you need a special font that you can't find elsewhere. These fixed-size bit-mapped fonts are stored on your hard disk and downloaded before printing. (Many applications, such as *Ventura Publisher,* come bundled with a smattering of soft fonts.) While generally your cheapest solution—prices range from $15 to $300 per typeface—soft fonts require extra hard disk space and printer RAM, and you may run into compatibility problems with some applications.

Scalable-Font Generators

Scalable-font generators turn your PC into a type foundry—just select a typeface from a list, and scale it to whatever size you like. It's a fast and moderately cheap way to add fonts to your documents: The packages reviewed here cost between $200 and $400 for 35 or more font outlines. You can also view the scaled fonts on screen in both *Windows* and *Ventura.* But application support is limited, and many font programs require extra hard disk space and printer RAM. If you need additional typefaces and lack a PostScript printer, these are good buys.

PostScript Printers

PostScript printers give you easy access to 35 or more scalable font outlines and enable you to print virtually any complex graphic you can create (see *PC World*'s review of PostScript printers in the December 1990 issue). They also allow you to print the same page on a 300-dpi office laser or a 1270-dpi Linotronic printer. But they're expensive—from $2500 to $8000 for a 300-dpi device. If you're a full-time desktop publisher, a PostScript printer is a must-have. But if all you need is fonts, it's overkill.

PostScript Cartridges

Plug-in cartridges like Pacific Data's PacificPage or HP's PostScript Cartridge can turn your LaserJet into a PostScript printer for $300 to $700. But using a cartridge is generally slower than using a true PostScript printer, and you'll need extra printer memory. These cartridges are a good, economical choice for occasional desktop publishers who already own LaserJets.

PostScript Software Emulators

Another breed of PostScript "clones," emulators are software packages that process text and graphics in the PC, then send the pages directly to the printer. Although relatively cheap ($300 to $500 for 35-font versions), most are slower and less reliable than either cartridges or PostScript printers, and many require extra CPU memory and a math coprocessor for decent performance. If printing complex text and graphics is part of your daily regimen, you'd do better buying a cartridge—or the real McCoy.

LaserJet III

As with PostScript devices, HP's $2395 LaserJet III lets you create fonts of virtually any size inside the printer. But it's limited to eight resident font outlines, it lacks PostScript's full graphics power, and HP's PCL 5 printer language isn't supported by most high-resolution imagesetters. Still, if you're shopping for a new laser and don't need professionally typeset output, the HP is a good deal.

Times Roman becomes Marin, while Helvetica is called Dixon. Fortunately, you can easily rename the fonts. Each package includes three typeface families in a variety of unusual styles—solid and hollow versions of thin, condensed, wide, and expanded font outlines—for a grand total of 30 typefaces. You can buy more than 80 other multitypeface collections for $29.95 each, but you can only add fonts made by Atech or Monotype.

If you need on-the-fly printer fonts in non-*Windows* programs or require the highest-quality output from dot matrix printers, *Publisher's Powerpak* is your Best Buy.

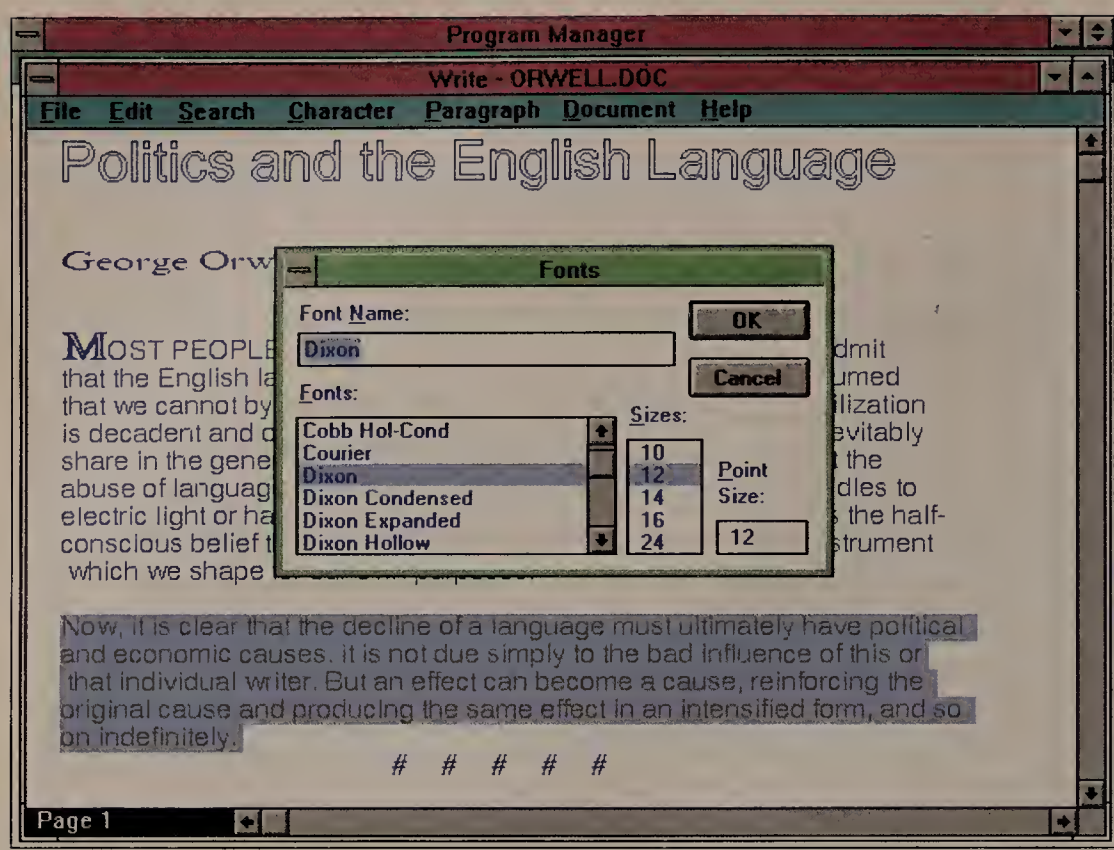
SoftType 1.01

PROS: 63 standard typefaces, unique type-styling utility

CONS: Slow, lacks on-the-fly fonts, limited screen fonts, no way to add typefaces

Z-Soft's $199 *SoftType* has two things going for it: a generous 63 standard typefaces, and a unique type-styling feature that lets you create your own fonts. So much for the good news. The bad news is that *SoftType* is hampered by the same limitations as *Type Director* and *Fontware,* its support for non-laser printers is poor, and expandability options are nil. The *Windows*-based *SoftType* offers neither the speed nor the simplicity of *ATM* and *Powerpak.*

SoftType lets you create fonts for *Ventura Publisher* as well as *Windows.* Installing *SoftType* takes a long time and requires 1MB for program files, plus acres of space for fonts. As with



Atech's typefaces aren't really unique—Cobb is actually Courier, while Dixon is Helvetica—but only Publisher's Powerpak offers hollow, expanded, and condensed versions of each face.

With Agfa Compugraphic's Type Director, you must specify a font's name, size, and character set before using it in your document.

Type Director and *Fontware*, *SoftType* makes you define your fonts before starting an application, then stores screen and printer fonts in separate files. Screen fonts top out at 36 points, and *Ventura* users must run a separate utility to create font width tables.

Since you must download fonts at print time, printing is slow, though you can print in the background under *Windows*. While laser print quality is good, version 1.01 doesn't support ink jets at all, and its dot matrix output is poor and limited to available screen font sizes.

On the other hand, *SoftType* comes with a type-styling facility that lets you modify fonts with special effects like shadowing and shading. But that's the only way you'll be able to add fonts to the original 63. Version 1.02 of the program, due out at press time, will add the ability to scale Type 1 PostScript outlines, plus ink jet support.

If you need to create unique typefaces for letterheads and logos, *SoftType*'s font modifier is a useful tool. But as a font generator for everyday business documents, it's too slow and limited.

SuperPrint 1.0

PROS: Vast font library, on-the-fly printer fonts

CONS: Screen fonts must be created manually, complex interface, no dot matrix support

Priced at a fairly steep $195, Zenographics' *SuperPrint 1.0* offers on-the-fly printer fonts for *Windows* applications, but you'll have to create the screen fonts manually. (Version 1.1, released too late for inclusion in this review, features on-the-fly screen fonts and other improvements.) Also, version 1.0 doesn't support dot matrix printers or non-*Windows* applications. If you're looking for variety, it's a good deal—*SuperPrint* is compatible with virtually every font library in existence—but otherwise, the other on-the-fly packages are better.

SuperPrint is easy to install, but it demands 2MB of disk space, plus room for screen fonts. The program generates printer fonts automatically, but to get display fonts in version 1.0 you must launch the SuperText utility, specify fonts and sizes, and wait while the program creates the files. As with the traditional font generators, screen font sizes are limited.

SuperPrint isn't as easy to use as *ATM* or *FaceLift*. You have to set up the SuperQueue driver and specify it in the *Windows* control panel, then define several parameters before using your fonts. Again, version 1.1 should fix many

Face to Face: Font Software Compared

SOFTWARE	PRINTERS: Epson LX-86	Hewlett-Packard DeskJet 500	Hewlett-Packard LaserJet Series II
Adobe Type Manager 1.0	Roman 24	Roman 24	Roman 24
Agfa Type Director 2.0	Roman 24	Roman 24	Roman 24
Atech Publisher's Powerpak	Roman 24	Roman 24	Roman 24
Bitstream FaceLift 2.0	Roman 24	Roman 24	Roman 24
Bitstream Fontware	Roman 24	[1]	Roman 24
Zenographics SuperPrint 1.0	Roman 24	Roman 24	Roman 24
Z-Soft SoftType 1.01	Roman 24	[2]	Roman 24

[1] Support for ink jet varies with installation kit.
[2] Not supported.

In our typeface face-off, all the programs produced crisp laser and ink jet fonts, but only Atech Publisher's Powerpak yielded decent dot matrix output.

of these problems.

Because *SuperPrint* uses its own printer drivers, it produces output slightly faster than the other packages and displays printer progress graphically—a nice touch. Output quality is excellent on both laser and ink jet machines, but if you need dot matrix support, you'll have to wait for version 1.1.

SuperPrint can use outlines from just about any source. In addition to its standard 22 font outlines, it accepts Adobe Type 1, Bitstream, Agfa Intellifont, and URW typefaces, giving it the largest potential library in the roundup. Zenographics' $129 *SuperFonts* package offers 22 additional outlines.

Version 1.1, with its automatic screen font generation and superior dot matrix support, should make *SuperPrint* more competitive with the other on-the-fly packages. But *1.0* just misses the mark.

Type Director 2.0

PROS: High-quality laser output, excellent application support, matching screen fonts for LaserJet III users

CONS: Poltry selection of standard typefaces, poor dot matrix output, locks on-the-fly font scaling

EXECUTIVE SUMMARY

Adobe and Atech: Easy Fonts, No Waiting

Scalable-font software offers an inexpensive alternative to PostScript printers.

You don't have to buy new hardware to get high-impact, professional-looking fonts. The best of these font packages offer instant access to a wide range of typefaces that look as good on screen as they do on the page.

Adobe Type Manager 1.0 is the Best Buy for Windows 3.0 users, thanks to its smoothly transparent operation and its compatibility with thousands of Adobe Type 1 PostScript font outlines. Just install **ATM** and forget about it: The program works inside your application, automatically producing fonts as you work. Atech's **Publisher's Powerpak** is the Best Buy for those who need on-the-fly printer fonts for old DOS standbys like Ventura Publisher, WordPerfect, and Microsoft Word.

	Adobe Type Manager 1.0	FaceLift 1.0	Fontware	Publisher's Powerpak	SoftType 1.01	SuperPrint 1.0	Type Director 2.0
Printer support	Excellent	Excellent	Good	Excellent	Good	Fair	Good
Software support	Fair	Fair	Excellent	Excellent	Fair	Fair	Excellent
Printer font quality	Good	Good	Good	Excellent	Fair	Excellent	Good
Screen font quality	Excellent	Excellent	Fair	Excellent	Fair	Good	Fair
Font options	Excellent	Good	Good	Good	Good	Excellent	Fair
Ease of use	Excellent	Good	Poor	Good	Poor	Good	Poor
Overall value	Excellent	Good	Fair	Excellent	Fair	Good	Fair
	BEST BUY			BEST BUY			
Reader service no.	605	606	607	608	609	610	611

How we rate font generators
We rate font generators based on information in the Features Evaluation, combined with our opinions of quality, reliability, ease of use, and user benefit.

Printer support is critical. To earn an Excellent rating, the program must support Hewlett-Packard LaserJet and ink jet printers, plus Epson-compatible dot matrix printers.

Software support rates how well the package works with key applications. To earn an Excellent rating, the program must work with *Windows 3.0* applications, plus popular DOS programs such as *Ventura Publisher, WordPerfect,* and *Microsoft Word.*

Printer font quality assesses the quality and sharpness of final output. While the primary emphasis is on laser output, an Excellent rating means that the package produces exemplary printouts on all its supported printers.

Screen font quality measures both the appearance of screen fonts and how well they match final output. To earn an Excellent rating, display fonts must be smooth and readable from at least 4 points to 127 points in size and must correspond to all printer fonts in size and appearance.

Font options measures both how many typeface outlines the package provides and how many additional outlines are available. To earn an Excellent rating, a package must include versions of Times Roman and Helvetica in four styles, plus at least five more font outlines. At least 500 additional typefaces must also be available.

Ease of use rates the program on ease of installation and smooth integration with supported software. An Excellent rating here means that you can install program and font files in a single automated process and that you can select, size, and print transparently from inside your applications. Hard disk storage requirements must be minimal, and the program should not slow down your application's print speed or screen display.

Overall value weighs all of the above criteria, with special emphasis on software compatibility, print quality, and ease of use; it also factors in the price of each package.

When it comes to laser output, Agfa Compugraphic's $99 package is a star; otherwise, this *Director* is no Hitchcock. It forces you to generate fonts manually, then download them to the printer. Worse, it combines the fewest standard fonts with the most expensive add-ons. Even though it works with a broad range of applications and provides excellent support for the LaserJet III, most users will find it only a fair value.

Installing *Type Director* is a pain. The program swallows up 1.75MB—and that's *before* you create any fonts. But a pulldown menu interface makes it fairly easy to build fonts. First, identify the application where the fonts should go, and select your desired outlines. Then enter the point sizes, and specify parameters such as orientation (portrait or landscape) and character set. Need to create a new font or install fonts for another application? As with *Fontware* and *SoftType,* you'll have to start the process all over again.

Also worthy of suspicion is Agfa's skimpy selection of typefaces. You get only 8 font outlines: CG Times and Univers in normal, bold, medium, and italic versions. And the price of additional fonts may give you vertigo—you can pay a steep $99 per family, or buy a package of 12 outlines for $199.

Type Director supports *Windows, Word, WordPerfect, Ventura Publisher,*

ONLY·ONE

DESKTOP PUBLISHER

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Make sure you buy before Dec. 31, 1990 —you'll get 5 additional fonts FREE (a $125 value) while supplies last!

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It's also the only desktop publisher under $160 that lets you scale any font instantly,* from "mouse size" up to 2″ high. Wrap text to fit any shape, automatically. And print the crispest, cleanest output your dot matrix or laser printer can produce.

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*Express Publisher 2.0 utilizes Intellifont® type scaling technology.

Send the title page of your current desktop publisher, this ad, and a check for $49.95 plus $3.95 shipping & handling payable to Power Up Software. Residents of CA, NY, IL, PA, WA: add applicable sales tax. Please specify 3.5″ or 5.25″ disks. Mail to: Power Up Software Corporation, EP Trade Up, PO Box 7600, San Mateo, CA 94403. Offer expires June 30, 1991.

Power Up! SOFTWARE CORPORATION

M125

Circle 211 on reader service card

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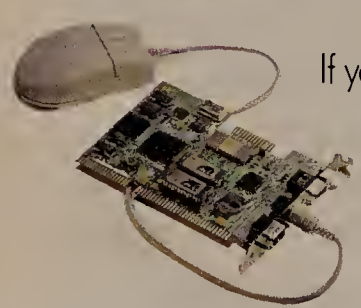

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Circle 302 on reader service card

WordStar 5.5, and *MultiMate 4.0*, among others. Laser printer output is excellent, but screen fonts are limited in size, and dot matrix output is for the birds. On the positive side, *Type Director* uses the same font-scaling technology found inside HP's LaserJet III, which gives LaserJet III owners matching screen fonts and the ability to download font outlines to the printer—an easy way to add typefaces to the HP's meager collection of eight outlines.

In other respects, *Type Director* suffers the same limitations as the other while-you-wait font generators. (Agfa's *Intellifont for Windows 3.0*, which provides on-the-fly font scaling for the III and IIID printers, should be available by the time you read this.) If you own a LaserJet III and use a program not supported by *ATM* or *Powerpak*, you might consider buying *Type Director*. Otherwise, it won't win any Oscars.

Facing the Font Choice

Once you use an on-the-fly font generator, you'll never go back. The question is, which one do you choose?

For *Windows 3.0* users, the answer is *Adobe Type Manager*. *FaceLift* is a good deal, but it can't match *ATM*'s fluid operation, overall speed, and huge library of available typefaces. If you need fonts for *Ventura Publisher*, *WordPerfect*, or other popular DOS applications, plus high-quality dot matrix output, your best bet is Atech's *Publisher's Powerpak*. Sure, you can still get by using your printer's tired old typefaces. But when font packages are this cheap and easy to use, why hesitate?

George Campbell is a contributing editor for PC World. *He writes the monthly* Words Into Print *column. Daniel Tynan is an associate editor for* PC World.

For more information about all products in this article, circle reader service no. 902.

WHERE TO BUY

Adobe Type Manager for Windows 1.0
Adobe Systems, Inc.
1585 Charleston Rd.
P.O. Box 7900
Mountain View, CA
94039-7900
800/344-8335
LIST PRICE: $99; 22-outline font pack $198; additional packages range from $99 to $370 depending on number of outlines
REQUIREMENTS: 1MB (2MB recommended), DOS 3.1 or later version, hard disk, Windows 3.0
TECHNICAL SUPPORT: unlimited, M, W, F 8–5; T, Th 8–4
OTHER SUPPORT: none
Reader service no. 605

FaceLift 1.0
Bitstream, Inc.
215 First St.
Cambridge, MA
02142-1270
800/522-3668,
617/497-6222,
617/868-4732 (fax)
LIST PRICE: $99; 35-font PostScript pack $179, 24-font Value Pack $199; sets of 4 outlines $129 each, sets of 12 outlines $199 each
REQUIREMENTS: 640K, DOS 3.1 or later version, hard disk, Windows
TECHNICAL SUPPORT: unlimited, toll number, M–F 9–7
OTHER SUPPORT: none
Reader service no. 606

Fontware
Bitstream, Inc.
LIST PRICE: up to $30 (varies with application); sets of 4 outlines $129 each, sets of 12 outlines $199 each
REQUIREMENTS: 512K, DOS 3.1 or later version, hard disk
TECHNICAL SUPPORT: unlimited, toll number, M–F 9–7
OTHER SUPPORT: none
Reader service no. 607

Publisher's Powerpak
Atech Software
5964 La Place Ct.
#125
Carlsbad, CA 92008
800/748-5657,
619/438-6898 (fax)
LIST PRICE: $79.95 for each version, additional typeface collections $29.95
REQUIREMENTS: 640K, DOS 3.1 or later version, hard disk
TECHNICAL SUPPORT: unlimited, toll number, M–F 8–11:30 1:30–4:30
OTHER SUPPORT: none
Reader service no. 608

SoftType 1.01
Z-Soft Corp.
450 Franklin Rd. #100
Marietta, GA 30067
404/428-0008,
404/427-1150 (fax)
LIST PRICE: $199
REQUIREMENTS: 640K, DOS 3.0 or later version, hard disk, Windows
TECHNICAL SUPPORT: unlimited, toll number, M–F 10–6
OTHER SUPPORT: BBS, CompuServe forum
Reader service no. 609

SuperPrint 1.0
Zenographics, Inc.
4 Executive Cir.
Irvine, CA 92714
800/366-7494,
714/851-1314 (fax)
LIST PRICE: $195; Superfonts (22 additional outlines) $129
REQUIREMENTS: AT, 640K, DOS 3.0 or later version, hard disk, Windows
TECHNICAL SUPPORT: free for first 180 days, toll number, M–F 8–5
OTHER SUPPORT: BBS
Reader service no. 610

Type Director 2.0
Agfa Compugraphic Division
90 Industrial Way
Wilmington, MA
01887
800/873-3668
LIST PRICE: $99; additional typeface families $99 each, pack of 12 outlines $199
REQUIREMENTS: 640K, DOS 3.1 or later version (excluding DOS 4.0), hard disk
TECHNICAL SUPPORT: unlimited, toll-free number, M–F 8–5
OTHER SUPPORT: none
Reader service no. 611

POWER TIP NO. 156

Crosstalk's Screen Snapshots

During an on-line session, you may need to save a screen of data to disk, such as a new host system's commands. *Crosstalk XVI* has an obscure command that saves a snapshot of a screen to an ASCII file: Press <Esc>pi<Enter> during the session, and enter a path and file name.

Susan Keeler
Washington, D.C.

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THE BRICK™

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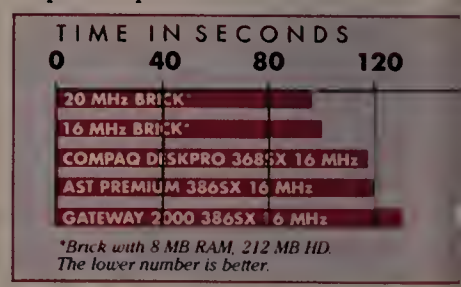

Time to complete PC Magazin full benchmark test set.

"A Tote-able that Outperforms the Desktops...

Consistently outperforms both Compaq's and IBM's 386SX on the PC Labs computer benchmark tests...Ergo's Brick maintains the functionality of a Desktop PC within a small form factor"

— PC MAGAZINE, Sept. 1990

Fits in half a briefcase, leaving room for full-sized folders, notebooks, etc.

aggregate of system, video and hard disk benchmarks.

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Bricks are available with 16 or 20 MHz 386SX, 1-8 MB of RAM, a fast 44, 104 or 212 MB Conner or Teac IDE hard disk, and a 387 coprocessor socket. A 2,400 bps Hayes compatible modem is standard.

The fast VGA graphics feature up to 1024 x 768 non interlaced resolution with a full 1 MB of video memory. In fact, the Brick's video performance is twice as fast as the average of 42 386SX systems tested by *PC Magazine!* This makes an enormous difference in the perceived "response" of the system, especially if you're running graphically intensive applications like Windows or Desktop Publishing.

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The Brick is only about the size of a ream of copier paper, yet you can still add up to two ISA half cards internally, (one card with a floppy drive). A docking port allows easy, drop-in connection to our Docking Terminal, ($249, available Q1 1991) which instantly hooks up all cables and provides another 16-bit 3/4 length slot. The "stretch" version of the Brick accommodates full length cards.

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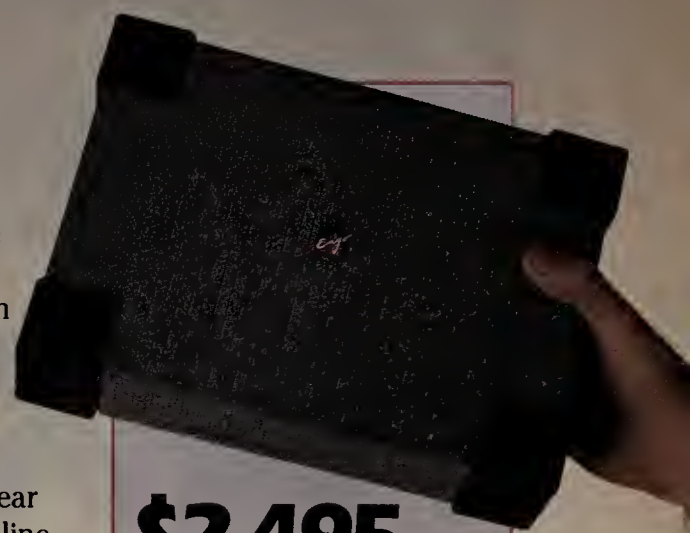

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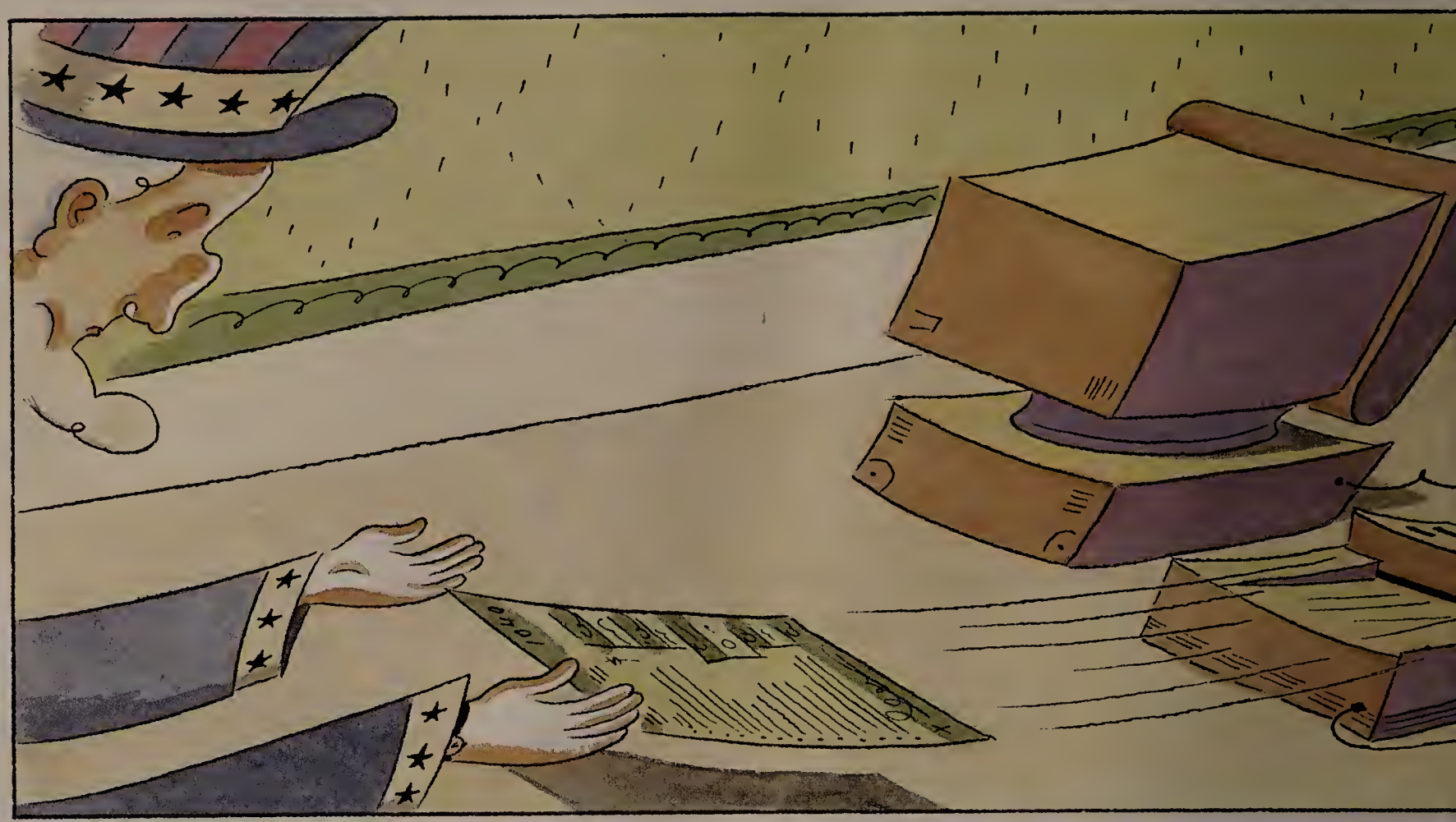


TAX RELIEF FOR THE REST OF US

It's that time of year again—time to start pulling together receipts from business expenses, totaling up charitable contributions and child care payments, and preparing for the agonizing task of doing your taxes.

Most of us have two basic goals when tax time rolls around: to get the return done quickly and painlessly, and to pay as little as is legally possible. For some people, that means handing everything over to an accountant. But more and more PC-savvy taxpayers are opting for another route: tax preparation software.

Every year tax packages get more capable, adding more forms and schedules and incorporating additional handholding devices. The current generation of tax software doesn't just automate the process—it actually offers tax *advice* along the way.

Will you be one of the converts who throws away the scratch pad and parts company with the accountant in favor of tax software? That depends, say both tax professionals and software developers, on the complexity of your return, your knowledge of tax law, and the amount of time you're willing to invest.

BEYOND THE 1040EZ

Whether or not tax software can meet your needs depends more on what return you file than on your income level. If you file a 1040EZ return, for example, you probably don't need a tax package. In the time it takes to install and learn the program, you could fill out the one-page form, drop it in the mail, and still have time to work on your backhand.

Similarly, tax packages are of limited

MICHAEL KLEIN

use for anyone at the other end of the spectrum, whose return is so complex that it takes a tax whiz to calculate the liability. A case in point: Many small-business owners must comply with complicated rules for depreciation of capital equipment. And while several packages support IRS Form 4562 for depreciation and amortization, they will not select a depreciation method for you—for that you still need to see an accountant.

"Tax law isn't an ABC-type thing. It's subject to interpretation," acknowledges Mike Chipman, president of *TurboTax* developer ChipSoft. In complicated areas, he notes, "you can ask 50 tax preparers the same question and get 50 different answers." Obviously, that's not the kind of uncertainty you want resolved by a computer program.

If, on the other hand, your return is relatively uncomplicated, tax packages "will do an adequate job," says Paul Cashiola, a Houston CPA and member of the American Institute of Certified Public Accountants' (AICPA) Tax Computer Applications Committee. An "uncomplicated" return, according to Cashiola, is one limited to W-2 income and itemized deductions such as charitable contributions, as well as state and local income tax, local property tax, home mortgage interest, and personal investment interest.

For users who fit into this category—which covers the vast majority of the working population—tax software can be a godsend. It simplifies the preparation process, gives you a better understanding of the implications of your financial transactions, and will very likely save you money. Not only will you be able to forgo the price of an accountant, you may even wind up paying less in taxes, since many packages now include tax-savings tips.

That's what happened last year when Judith Goebig, who is a word processor and computer bookkeeper in a law office in Philadelphia, decided to do her own taxes using *TurboTax* rather than take them to an accountant. The result? "I saved over $100, including the price of the program," says Goebig, who plans to use tax software again this year.

Max Calvert of Fayetteville, Arkansas, is another convert. He used a tax package for the first time last year because he was tired of doing his return manually. "I'm a skeptic, so I [calcu-

Thinking about using a tax package for your 1990 returns? If your earnings aren't too complex, you can shave hours off the time you or your accountant spend on preparation.

ROBERTA FURGER

GERRY GROPP

Even with tax software, you have to understand IRS rules, cautions Novato, California, accountant Shari Morgan.

STEVE JENNINGS

"I got tired of doing my return manually," says tax software convert Max Calvert of Fayetteville, Arkansas.

lated] some areas by hand before having the package do it," says Calvert, who adds that the software's results were identical to his every time.

PROCEED WITH CARE

Calvert isn't your ordinary taxpayer. He's an accountant who's been preparing tax returns for 50 years. And as Calvert and others are quick to point out, the more complicated your finances, the more you'll need to know about tax code. Many tax packages now include multitiered advice designed to help the tax neophyte cut through IRS jargon and figure out his or her return. These additions should provide sufficient information for straightforward returns, but users with more complex tax scenarios may run into problems.

"What makes me nervous is when the user doesn't really know if his or her situation fits into the form," says Shari Morgan, an accountant in Novato, California, and a user of tax software for both personal and professional purposes. "You could prepare your tax return and then get hit a year or two later by an audit because you misinterpreted the rules, she cautions."

DAN FORD CONNOLLY

Houston, Texas, CPA Paul Cashiola finds that tax preparation packages are well suited for users with uncomplicated returns.

Tax software will never replace a professional's advice and recommendations. If you've always relied on an accountant or a tax attorney to decipher the ins and outs of tax law, your best bet is to continue to do so. "No software can cover the gray areas in tax law," admits Kathy Lane, president of Softview,

Own a Home Business? The IRS Is Watching

A word of advice ta hame-business owners cansidering using a tax package far this year's return: Don't say gaadbye ta yaur accountant.

Few categories af taxpayers are scrutinized mare clasely than the awner af a hame business. Because af the patential far abuse, the IRS looks upan many hame-business deductians with a skeptical eye and will aften ask for detailed justificatian af expenses. Sa in additian ta filling out all the necessary farms, yau'll need ta maintain detailed recards af all expenses.

Several tax packages in the accampanying Buyers' Guide support the basic forms and schedules yau'll need ta camplete yaur return. Some alsa feature sophisticated help features to guide yau thraugh complex tax regulatians and determine yaur liability.

Even with the extra level af advice, hawever, na tax package can ensure that yaur assumptians and interpretations are correct, particularly in an area as tricky as hame-business deductians. Far that yau'll need an accauntant.

The twa areas where yau're likely ta run inta trouble are determining allawable business expense deductians, such as a partion af yaur rent ar hause payment that gaes taward your hame affice, and determining depreciatian schedules far equipment used for bath persanal and business purpases. Comman deductians include cars and personal camputers, but bath items are classified as praperty by the IRS and are clasely scrutinized. Because these items abviously can be used for mare than business purpases, yau'll need ta dacument usage carefully—and then have yaur calculatians reviewed by a tax prafessianal.

Once yaur accauntant reviews your expenses and recammends a praper tax strategy, the tax package can do the rest af the work. Yau'll still save time and maney, and yau'll have same peace af mind knawing yau're cavered in the event of an audit. —*Raberta Furger and Suzanne M. Calvin*

In a Hurry for That Refund Check?

Last year for the first time the IRS allowed notionwide electronic filing of tax returns for anyone due a refund. More thon 4 million taxpayers seized this opportunity to speed up the delivery of their refund checks.

If you weren't one of the troilblozers who tried out this option lost year, here's how it works.

Individual taxpoyers can't file electronic returns directly with the IRS. Insteod, for o fee (generolly oround $25), you send your return to an authorized transmitting service, which then files it with the IRS. Most transmitting services will occept returns either electronicolly or through the moil, but if you send it via modem you'll have to follow up with a signed copy of the electronic filing form, since the service bureau must hove your signature on file before it can submit your return to the IRS.

Electronic filing can speed up your refund check by as much os severol weeks, according to IRS spokesmon Fronk Keith. He estimotes that electronic filers will get their refund checks in three weeks or less—sooner if they opt to hove it automatically deposited in their bonk account.

But the IRS didn't institute the progrom just so you could get your refund faster. Electronic filing saves the IRS time and money. Keith estimates that a return filed electronicolly requires one-tenth the staff to process. It also cuts down on errors ossociated with monual data entry—both yours and the IRS's. The error rote, occording to Keith, drops from opproximotely 16 percent to 4 percent when you file electronically.

Most of this yeor's tax packoges support electronic filing. But you con file electronicolly even if you hoven't prepared your return with tox software.

Severol financial institutions, such as banks and credit unions, will be offering the service to their customers, as will many of the large nationwide tax preporers. Be prepored to pay more than the overage $25 fee, however, if your return is not on disk.

Currently, only taxpayers due a refund can file electronicolly, but the IRS is testing a program this yeor that would allow the electronic filing of balance-due returns, with checks sent separately through the mail.

"When we started this program, we assumed there wos no morket for balance-due electronic filing," says Keith, "but mony tax professionals have soid they want to be able to send in all their returns at one time."

It's doubtful, though, that many individual toxpoyers will choose this option should it become available nationwide. After all, who wants to rush their payment to the IRS? —*R. F.*

maker of *MacInTax for Windows*. "Sometimes you need to go to a CPA and ask, Is this legal or not, and do I have a legitimate deduction here? Even an expert system can't cover that."

Tax scenarios that fall into the so-called gray area, say many tax experts, include returns involving payment of an alternative minimum tax, oil and gas partnerships, passive activity, complicated rules for depreciation of capital equipment, and investments in publicly traded limited partnerships.

YOU'RE ON YOUR OWN

A bottom-line consideration if you're thinking about tax software is whether you're willing to go it alone. You're the only one who will sign the return, and as one accountant notes dryly, "if the IRS questions something, it won't fly to say the software told you to do it."

Chipman and others say that users who have very complex returns or are leery of taking full responsibility for their taxes can use tax software as a planning tool. "Collect all the information, and then take it to an accountant for review," advises Chipman.

There's another group of users whom tax software will never fully satisfy: those who expect a refund and want to file early. Although developers issue fall releases of tax packages, these early versions don't include many eleventh-hour changes to tax law. That means if you're one of the estimated 80 million Americans getting a refund and want to send your return in early, you'll have to prepare some or all of it manually.

James Quinlen, a semiretired accountant in San Diego, fell victim to this problem last year. He bought *Andrew Tobias' TaxCut* in November 1989 and was told he'd receive the final version by February 1. It didn't arrive until March. And MECA Software wasn't the only developer to issue a final release late in the tax season. Several companies had similar problems getting the complete package out the door.

Developers say they're working to get the final versions to users as quickly as possible this year, but be prepared to wait until around February 1.

BUDDY, CAN YOU SPARE THE TIME?

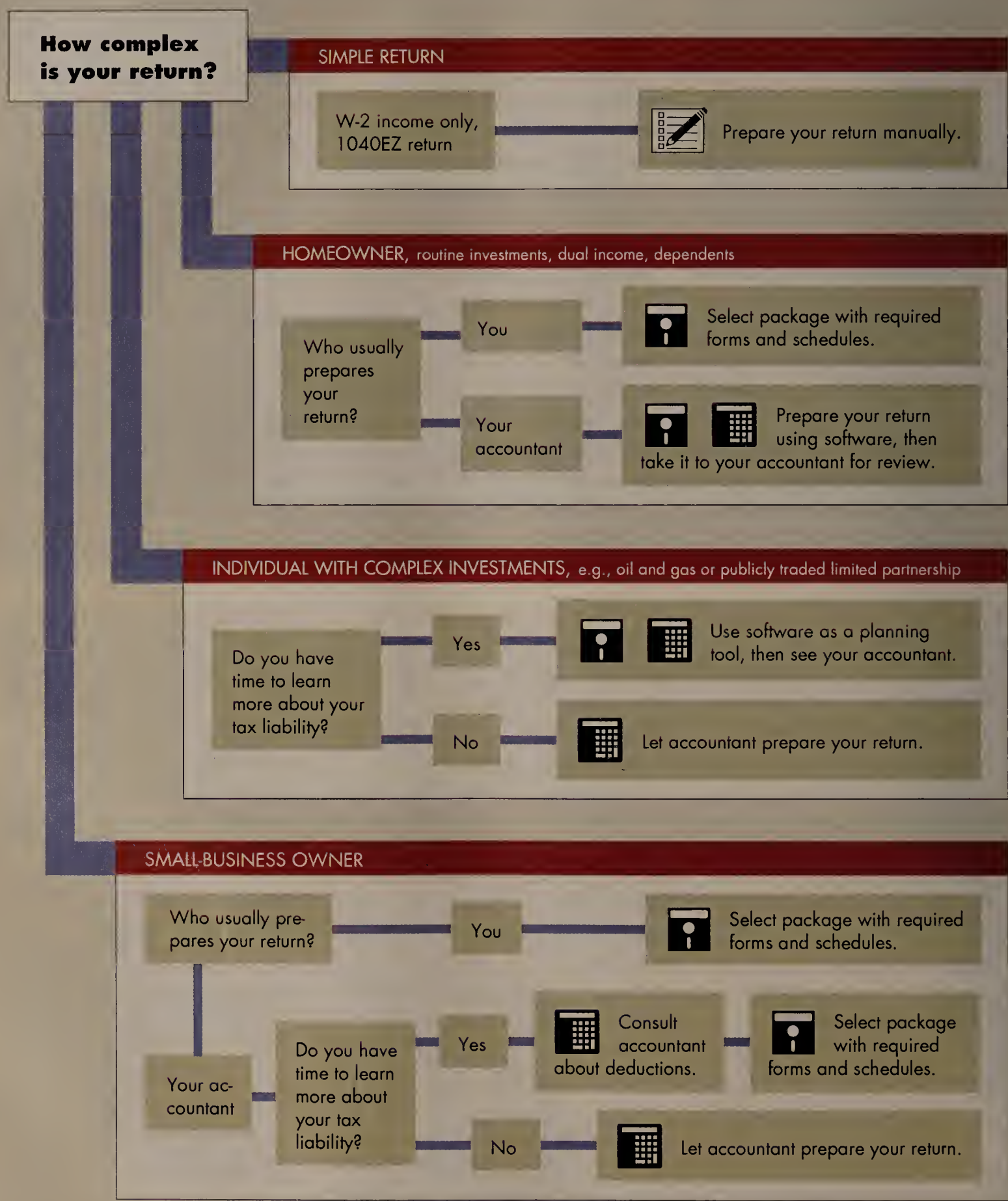
Just how much you stand to gain from using tax software, then, will vary depending on the nature of your return. But if you're willing to invest some time—both in learning a new program and familiarizing yourself with tax law—you may find that tax software can take some of the bite out of April 15.

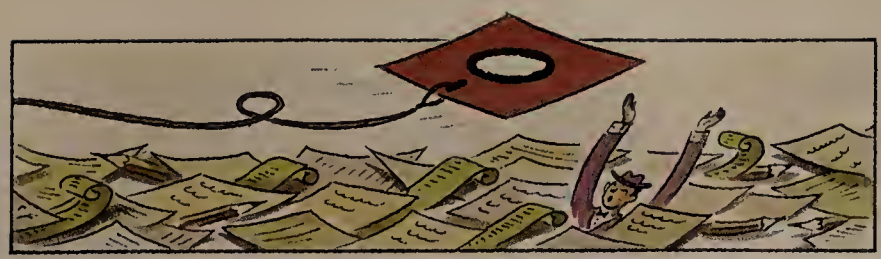
Roberta Furger is an associate editor for PC World.

KNOW YOUR OPTIONS

Is Tax Software Right for You?

When and how you use tax software depends on which of the four basic taxpayer categories you fall into—and on how much you're willing to learn about tax liability.





DO-IT-YOURSELF TAXES

HOW TO FIND THE TAX PACKAGE WITH THE RIGHT COMBINATION OF FORMS AND FEATURES.

If you've decided to roll up your sleeves, fire your accountant, and prepare your return using tax preparation software, here's the place to find out which tax packages will best meet your needs. Not even a good software package can make tax season fun, but at the very least it should speed up the process and give you a better understanding of your finances.

All the tax packages in this guide are designed for personal rather than professional tax preparation (although some companies also offer more robust versions for professional tax preparers). The least expensive package sells for $20, with most running about $75 for first-time users. Upgrades are significantly discounted.

GAUGE YOUR TAX KNOWLEDGE

Before buying a tax package, ask yourself how much help you'll need to complete your return. For many users, explanations of tax regulations and assistance in filling out the requisite forms will be the most important factors.

If you've always relied on a tax professional to prepare your return, look for a package that will point you to the forms and schedules you'll need. Several tax preparation packages now include an interview feature in which you're asked a series of questions to determine which forms you'll have to file. Once you've completed the interview, packages will either display the first form or bring up a checklist of forms you'll need to complete and then let you fill them out in any order.

Knowing which forms you need is only the first step, though. An equally difficult problem is figuring out *how* to fill them out. Again, the less you know about taxes, the more important the level of assistance. Most of the tax preparation packages include the official IRS instructions—either on line or in a separate manual. Many of the software developers also include best-selling tax guides such as the *Price Waterhouse Personal Tax Adviser* with their packages. Better still, however, is on-line, context-sensitive interpretation and explanation of the tax code.

CHECK PROGRAM FOR CONVENIENCE FEATURES

Other features that will help speed you through your tax return include a built-in calculator (with the ability to override calculations in unique circumstances) and linking between forms so that relevant data is carried over, meaning you don't have to enter the same figures twice. This saves time and reduces the potential for error.

To save you time *after* you've finished entering all your financial data, look for a package that includes an audit function to check your return for incomplete or conflicting entries, such as a skipped digit in your Social Security number or conflicting data on related forms. The audit detector in some packages will alert you to deductions that might trigger an IRS audit, such as an amount for charitable contributions that exceeds the IRS's generally accepted percentage of income.

LOOK FOR NEEDED FORMS AND SCHEDULES

Even the most advice-oriented tax package is of limited use if it doesn't support all the forms you'll need to prepare your return. To get at least a preliminary list of forms you'll need, check last year's return. Then match your list to the list of forms supported by the various packages. Just because your form isn't supported doesn't mean you can't use the package, but you'll have to complete any unsupported forms manually—and without the tax advice that goes along with supported forms.

Once you've completed your federal return using the software, you may be able to get a state package from the same developer that will automatically read in the relevant data for quick completion of your state income tax return. No package supports all 50 states—although *TurboTax* comes close with 45. You'll also pay around $50 extra.

SUSAN LUSTY

MICHAEL KLEIN

TAX PREPARATION SOFTWARE

Y = yes
N = no

DM = dot matrix
LP = laser printer
CF = CheckFree

CWP = Andrew Tobias' Checkwrite Plus
DS = Dollars and Sense
MC = MoneyCounts

	AM Tax	Andrew Tobias' TaxCut	J.K. Lasser's Your Income Tax 1991	MacInTax for Windows	Personal Tax Filer	Personal Tax Preparer for 1990	Swiftax	Sylvia Porter's Rapid Tax
Manufacturer	AM Software	MECA Software	J.K. Lasser Institute	Softview	Disk-Count Software	Parsons Technology	Timeworks	DacEasy
STANDARD FEATURES								
Price	$65	$90	$75	$99	$20	$49	$80	$80
Upgrade price	$45	$50	$55	$50	$20	$24.50	$35[1]	$35
Memory required	320K	512K	512K	2MB	384K	512K	512K	512K
DOS supported[2]	2.0	2.0	2.1	3.0	2.0	2.11	2.1	3.0
Windows 3.0 version	N	N	N	Y	N	N	N	N
TAX HELP								
Interview format	N	Y	Y	Y	N	Y	Y	Y
Identifies required forms	N	Y	Y	Y	N	Y	Y	Y
Tax advisor on line	N	Y	Y	N	N	Y	Y	Y
On-line IRS instructions	N	Y	N[3]	Y	Y	Y	Y	Y
Supplemental tax guide included	N	N	Y	N	N	N	Y	N
Tax planner	Y	Y	Y	Y[4]	N	Y	N	Y
What-if analysis	Y	Y	Y	Y[4]	N	Y	Y	Y
Audit detector	N	Y	Y	N	N	Y	Y	Y
Audit trail printout	N	Y	N	Y	N	Y	N	Y
PREPARATION TOOLS								
Built-in calculator	Y	Y	Y	N	N	Y	Y	Y
Calculation override	limited	Y	Y	N	N	Y	Y	Y
Automatically recalculates entries after changes	Y	Y	Y	Y	Y	Y	N	Y
Links information between forms	Y	Y	Y	Y	Y	Y	Y	Y
EASE OF USE								
Pulldown menus	N	Y	Y	Y	Y	Y	Y	Y
On-screen forms	Y	Y	N	Y	Y	Y	Y	Y
On-line software help	Y	Y	Y	Y	Y	Y	Y	Y
On-line tutorial	N	Y	N	N	N	N	Y	Y
Imports from personal finance packages	N	MYM, Q, CWP, TT, CF	Q	N	N	MC, DS, Q, MYM	Q, DS, MYM	N
OUTPUT								
Prints accepted IRS forms	DM, LP	DM, LP	DM, LP	DM, LP	DM	DM, LP[5]	DM, LP	DM
Requires special font cartridges	Y[7]	N	N	N	Y[6]	N	N	N
Requires special forms	N	N	N	N	N	N	N	N
Electronic filing	Y	Y	Y	Y	Y	Y	Y	Y
SUPPORT								
Toll-free tech support	N	N	N[8]	N	N	N	Y	N[9]
Hours available	12	8	8[10]	11	9	12.5	8	10
Weekend support	N	Y	Y[7]	Y	N	Y	N	N
Fax	Y	Y	Y	Y	Y	Y	Y	Y
BBS	N	Y	N	Y	N	N	Y	Y
Reader service number	647	624	648	625	649	650	651	652

1 Registered users only.
2 Earliest version supported.
3 Uses own tax help on line.
4 Costs $79 extra.
5 If printer does not have graphic capability, Tax Preparer needs preprinted 1040
6 All except 1040 form.
7 LP only.
8 900 number, first minute free, $1 for each additional minute.
9 $25 for unlimited support.

MYM = Andrew Tobias' Managing Your Money
Q = Quicken
TT = TurboTax

Tax Command	Tax Magic Personal	Tax Magic Personal Plus	TurboTax Federal Personal 1040
Practical Programs	TaxByte	TaxByte	ChipSoft
$80	$69	$129	$75
$35	$49	$99	$37.50
512K	512K	512K	512K
2.0	2.0	2.0	2.0
N	N	N	N
N	N	N	Y
N	N	N	Y
N	Y	Y	Y
N	Y	Y	Y
N	N	N	N
N	Y	Y	Y
N	Y	Y	Y
N	N	N	Y
N	Y	Y	N
Y	Y	Y	Y
Y	Y	Y	Y
Y	Y	Y	Y
Y	Y	Y	Y
N	Y	Y	Y
N	Y	Y	Y
N	Y	Y	Y
N	Y	Y	Y
N	N	N	Q, MYM, DS
DM, LP[6]	DM	LP	DM, LP
Y	n/a	Y	N
Y[6]	Y[6]	Y	N
Y	N	N	Y
Y	N	N	N
12	10	10	15
Y	Y	Y	Y
N	Y	Y	Y
N	N	N	Y
653	654	654	623

[10] 8 hours of staffed support M–F, automated phone support 24 hours, 7 days o week.

PLAN AHEAD

As part of the trend to go beyond just automating the preparation process, many programs now include some tax planning advice or support for what-if analysis to help you determine the implications of various tax strategies. And if you've been monitoring your finances all year using a personal finance package, look for a program that can import directly from the leading packages. At a minimum, you should be able to import data in ASCII format, but at its best, the link should not only transfer the data seamlessly but also apply it to the appropriate forms.

THINK ABOUT SUPPORT

Despite all the built-in help many packages include, there inevitably comes a time when you'll need to pick up the phone and call the company's technical support staff. Some developers are beginning to offer weekend service or extended weekday hours for technical support—an important option if you won't be doing your taxes during regular business hours. Keep in mind, however, that tax software developers are generally bombarded with calls from mid-January through March. So look for a company with a toll-free line, or be prepared to rack up a sizable phone bill while you wait on hold for a technician.

EVALUATE OUTPUT OPTIONS

Last year for the first time taxpayers could file their returns electronically, and all but two packages in this guide now support the option. Most developers have established a relationship with an authorized transmitting service and include software to enable you to send your return electronically. You'll have to follow up with a signed copy of Form 8453 (for electronic filing); once that's received, the service bureau will transmit your return directly to the IRS and send you confirmation of its receipt. According to the IRS, you'll receive your refund check within three weeks.

If you plan to file the old-fashioned

(continues)

WHERE TO BUY

AM Software
P.O. Box 25010
Kansas City, MO
64119
816/426-8361,
816/452-3183 (fax)

ChipSoft, Inc.
P.O. Box 85709
San Diego, CA
92186-5709
619/453-8722,
800/755-1040 (fax)

DacEasy, Inc.
17950 Preston Rd.
#800
Dallas, TX 75252
800/877-8088,
214/248-1239 (fax)

Disk-Count Software, Inc.
1751 W. County Rd. B
#107
St. Paul, MN 55113
612/633-0730,
612/633-8678 (fax)

J.K. Lasser Institute
Simon & Schuster
Software
15 Columbus Circle
New York, NY 10023
800/624-0023

MECA Software, Inc.
327 Riverside Ave.
Westport, CT 06880
203/222-9150,
203/226-2437 (fax)

Parsons Technology
375 Collins Rd. NE
P.O. Box 3120
Cedar Rapids, IA
52406-3120
800/223-6925,
319/393-1002 (fax)

Practical Programs, Inc.
P.O. Box 93104
Milwaukee, WI 53203
800/776-7047

Softview
1721 Pacific Ave.
#100
Oxnard, CA 93033
800/622-6829,
805/385-5001 (fax)

TaxByte Inc.
1801 6th Ave.
Moline, IL 61265
800/873-2829,
309/764-0976 (fax)

Timeworks, Inc.
444 Lake Cook Rd.
Deerfield, IL 60015
708/948-9200,
708/948-7626 (fax)

PICK A FORM, ANY FORM

	Forms	Schedules	States
AM TAX	1040, 1040A, 1040A SCH1, 1040A SCH2, 1040A SCH3, 1040ES, 2106, 2119, 2210, 2441, 3800, 3903, 4136, 4137, 4255, 4562(23), 4684, 4797, 4835, 5329, 6251, 6252, 8283, 8582, 8606, 8814	A, B, C, D, D1, E, F, R, SE	CA, IL, MD, MO, NJ, NY, OH, VA
ANDREW TOBIAS' TAXCUT	1040, 1040A, 1040A SCH1, 1040A SCH2, 1040A SCH3, 1040ES, 1040EZ, 1040X, 1099-R, 1116, 2106, 2119, 2210, 2441, 3468, 3800, 3903, 4136, 4137, 4255, 4562, 4684, 4797, 4835, 4868, 4952, 4972, 5329, 6198, 6251, 6252, 8271, 8283, 8453, 8582, 8606, 8615, 8801, 8803, 8814, 8815, 8822, 8824	A, B, C, D, D1, E, F, K1, R, SE	CA, IL, MA, MD, MI, NJ, NY, OH, PA, VA
J.K. LASSER'S YOUR INCOME TAX 1991	1040, 1040A, 1040A SCH1, 1040A SCH2, 1040A SCH3, 1040ES, 1040EZ, 1040X, 1099R, 1116, 2106, 2119, 2210, 2441, 3468, 3800, 3903, 4136, 4137, 4255, 4562, 4684, 4797, 4835, 4868, 4952, 4972, 5329, 6198, 6251, 6252, 8283, 8453, 8582, 8606, 8615, 8814, 8815, 8824, K-1	A, B, C, D, D1, E, F, R, SE	AL, AZ, CA, GA, IA, IL, IN, KS, KY, LA, MA, MD, MI, MN, MO, NC, NJ, NY, OH, OK, PA, SC, VA, WI
MACINTAX FOR WINDOWS	1040, 1040A, 1040A SCH 1, 1040A SCH 2, 1040A SCH 3, 1040EZ, 1040X, 1040ES, 1116, 2106, 2106-S, 2119, 2210, 2441, 2555, 2688, 3468, 3800, 3903, 4255, 4562, 4684, 4797, 4868, 4952, 6198, 6251, 8283, 8453, 8582, 8606, 8615, 8801, 8806S, 8814, 8822	A, B, C, D, D1, E, F, R, SE short, SE long	CA, CT, DC, IL, MA, MD, MI, MN, NJ, NY, OH, OR, PA, VA
PERSONAL TAX FILER	1040, 2106, 2119, 2210, 2441, 3903, 4137, 4562, 6251, 8606, 8615	A, B, C, D, E, F, R, SE	none
PERSONAL TAX PREPARER FOR 1990	1040, 1040ES, 1040NR, 1040X, 1045, 1116, 1128, 2106, 2119, 2210, 2441, 2555, 2688, 3115, 3468, 3621, 3800, 3903, 3903F, 4136, 4137, 4255, 4469, 4506, 4562, 4684, 4797, 4835, 4868, 4952, 4970, 4972, 5329, 5884, 6198, 6251, 6252, 6478, 6765, 8283, 8396, 8453, 8582, 8582CR, 8586, 8606, 8609, 8611, 8615, 8801, 8803, 8814, 8815, 8822, 8824	A, B, C, D, D1, E, F, R, SE, A (8605)	none
SWIFTAX	1040, 1040A, 1040A SCH1, 1040A SCH2, 1040A SCH3, 1040ES, 1040EZ, 2106, 2119, 2210, 2441, 2688, 3800, 3903, 4137, 4255, 4562, 4684, 4797, 4868, 4952, 4972, 5329, 6251, 6252, 8283, 8453, 8582, 8606, 8615, 8814, 8815, 8822	A, B, C, D, D1, E, E1, F, R, SE	AL, AZ, CA, GA, IA, IL, IN, KS, KY, LA, MA, MD, MI, MN, MO, NC, NJ, NY, OH, OK, PA, SC, VA, WI
SYLVIA PORTER'S RAPID TAX	1040, 1040A, 1040ES, 2106, 2199, 2210, 2441, 3800, 3903, 4137, 4255, 4562, 4684, 4797, 4868, 4952, 4972, 5329, 6251, 6252, 8283, 8453, 8582, 8606, 8615, 8814	A, B, C, D, E, F, R, SE	1st: CT, DE, MA, ME, NJ, NY, PA, RI, VT[1] 2nd: AL, DC, GA, FL, MD, NC, SC, TN, VA 3rd: IL, IN, KY, MI, MN, OH, WI 4th: AR, CO, LA, MO, MS, NM, OK 5th: AZ, CA, HI, ID, OR, UT
TAX COMMAND	1040, 1040A, 1040A SCH1, 1040A SCH2, 1040A SCH3, 1040ES, 1040EZ, 2106, 2119, 2441, 3903, 4562, 6251, 8453, 8815	A, B, C, D, D1, E, F, R, SE	IL, WI
TAX MAGIC PERSONAL	1040, 1040A, 1040A SCH1, 1040A SCH2, 1040ES, 1040EZ, 2106, 2119, 2210, 2210F, 2441, 3468, 3800, 3903, 4136, 4137, 4255, 4562, 4797, 4835, 4952, 4972, 5329, 6251, 6252, 8332, 8606, IRA	A, B, C, D, D1, E, F, R, SE	CA, IL, LA, MA, MD, NC, NJ, NY, OH, PA, VA
TAX MAGIC PERSONAL PLUS	1040, 1040A, 1040A SCH1, 1040A SCH2, 1040ES, 1040EZ, 1310, 2106, 2119, 2210, 2210F, 2441, 3468, 3800, 3903, 4136, 4137, 4255, 4562, 4797, 4835, 4868, 4952, 4972, 5329, 6198, 6251, 6252, 8165, 8283, 8332, 8582, 8606, IRA, W2, W2P	A, B, C, D, D1, E1, E2, F, R, SE, PA1, PA2	CA, IL, LA, MA, MD, NC, NJ, NY, OH, PA, VA
TURBOTAX FEDERAL PERSONAL 1040	1040, 1040A, 1040A SCH1, 1040A SCH2, 1040A SCH3, 1040ES, 2106, 2119, 2210, 2441, 3800, 3903, 4137, 4255, 4562, 4684, 4797, 4868, 4952, 4972, 6251, 6252, 8283, 8453, 8582, 8606, 8615, 8814, 8822	A, B, C, D, D1, E, E1, E2, F, R, SE	AL, AR, AZ, CA, CO, CT, DC, DE, FL, GA, HI, IA, ID, IL, IN, IO, KS, KY, LA, MA, MD, MI, MN, MO, MS, MT, NC, ND, NE, NJ, NM, NY, OH, OK, OR, PA, RI, SC, TN, UT, VA, VT, WI, WV

[1]States bundled by region

way, most packages now produce IRS-accepted output, but not all packages support both dot matrix and laser printers. *MacInTax for Windows* prints exact replicas of IRS-approved forms on blank paper. Other packages may require special forms software or font cartridges, however, so check this section on the table carefully if you want to avoid having to copy the data by hand.

MAKE A LIST OF CRITICAL FEATURES

Every year tax software gets better and better. No one package can satisfy everyone's needs, however. So put together your list of crucial features and match that against the feature set for each of the packages in this guide.

The payoff can be substantial when tax time rolls around.

Susan Lusty is an assistant editor for PC World.

RATING THE RETURNS

A TAX ACCOUNTANT MATCHES WITS WITH THE TOP TWO TAX PACKAGES.

For years, *TurboTax* has been the undisputed leader among PC tax packages. But last year it got some real competition in the form of a revamped *Andrew Tobias' TaxCut* from MECA Software (see the *Product Outlook* item in this issue).

To see how market leader and repeated World Class winner *TurboTax* stacked up against its biggest challenger, we put the two packages through the paces, running them through three tax scenarios of increasing complexity to see how accurately and easily they prepared our returns.

Our conclusions?

You won't go wrong with either. Both support a wide variety of forms and schedules, offer hypertext help and an electronic filing option, and include many extras such as tax planning capabilities. Remarkably, the two packages came up with the same bottom line in each of our three scenarios.

Despite these similarities and the strength of the feature sets in both packages, *TurboTax* and *TaxCut* are likely to appeal to two types of users, because of their different approaches to entering data and checking your work.

TurboTax 8.0

We began our testing using the 1990 version of *TurboTax*, since final releases of 1991 versions (for the 1990 tax year) are unavailable until after January 1. Last year's package was competent, to be sure, but unexciting in its approach. Our opinion changed considerably, however, after we booted up the preliminary version of this year's *TurboTax*. An already strong package has been markedly improved.

New in *TurboTax* this year is a Next Step feature that guides you through the entire tax preparation process. Using an interview format, this handholding device moves you from one form to the next. As a result, you can complete your return in an organized manner, without ever feeling "lost" in the software.

After you complete the interview, you can enter any other tax data in *TurboTax*'s new Filing Cabinet, which includes an alphabetical listing of all the data required to complete the tax forms in the program. When you select an item from the cabinet, the program jumps to the particular tax form, invokes relevant help text, and then allows you to enter your data.

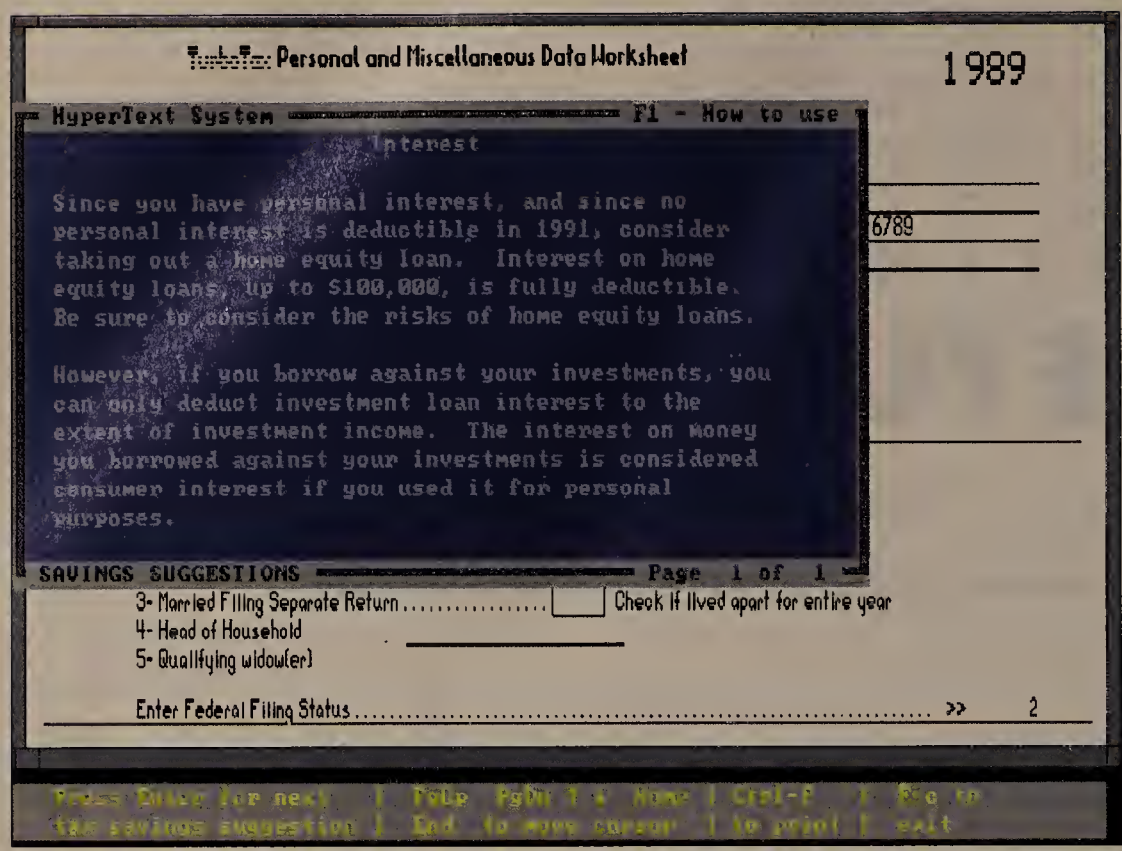
Once you complete your return, *TurboTax*'s audit feature scans it and flags items or amounts that the IRS routinely audits or inquires about. This feature will alert you to potential audit exposures so you can gather adequate supporting documentation before you file your tax return, rather than search for the information years later should you receive an IRS notice.

SUZANNE M. COLVIN

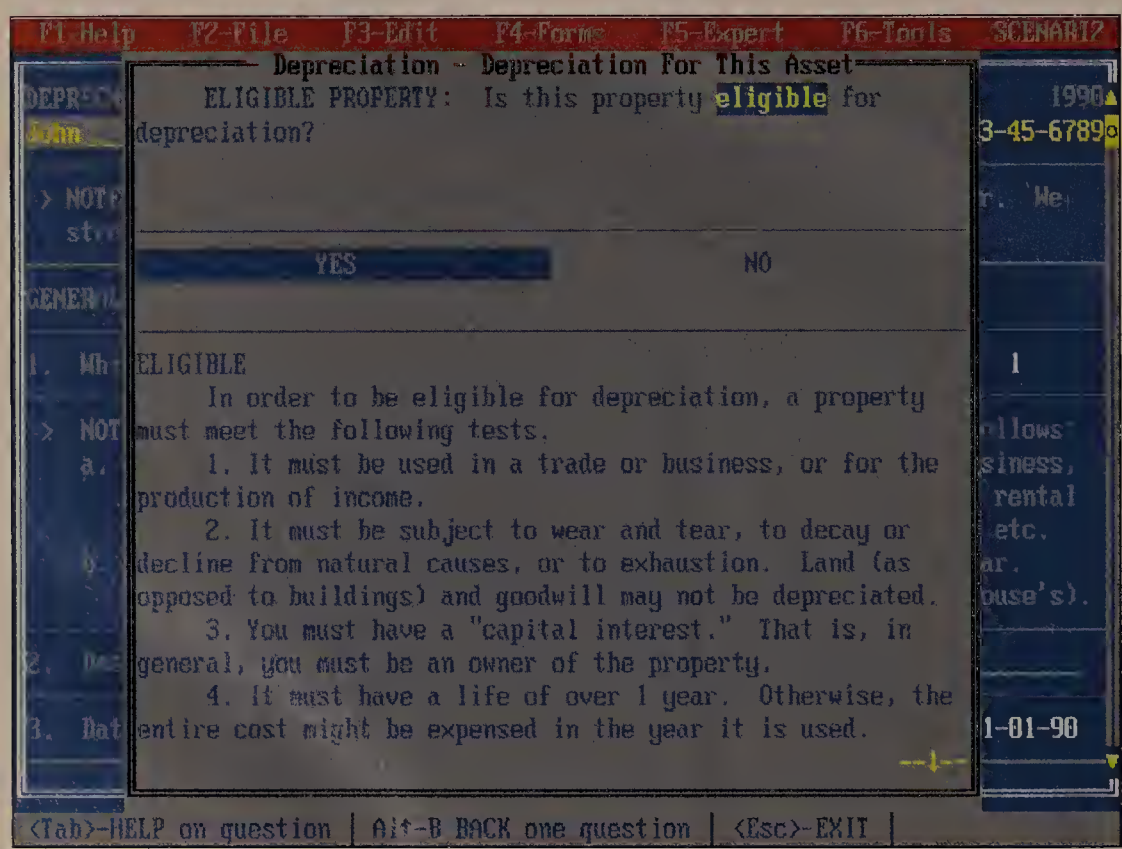
Andrew Tobias' TaxCut

TaxCut really shines when it comes to providing simplified "expert advice." Once you select a specific form to complete, you couldn't ask for better guidance: *TaxCut* will prompt you with easy-to-understand questions and then fill out the form for you. The program does not, however, guide you through the overall tax preparation process (moving from form to form) as clearly as longtime leader *TurboTax*.

When you open up *TaxCut*, you're prompted to review an introductory screen that describes all the steps needed to complete your return. *TaxCut* instructions recommend that you perform four steps: 1) Enter tax documents into the Shoebox (a listing of items needed to complete your return—W-2 forms, bank statements, and so on); 2) complete the Checklist to identify forms you'll need to file; 3) invoke the Expert to get a detailed explanation of most every item on every form; and 4) audit the return. While this road map may be fine for some users, others may find it confusing, since there is no organized format in which to enter financial information. You may end up jumping from one form to the next and end up discovering later that you have skipped a necessary form.



The 1991 version of TurboTax from ChipSoft suggests a variety of ways you can save on future taxes by offering different strategies based on your financial situation.



Available at the touch of a key, the Expert function in Andrew Tobias' TaxCut makes filing returns easier with its straightforward explanations of even complex tax issues.

When you evoke *TaxCut*'s Expert, you're asked a series of detailed questions designed to elicit all the information needed to fill out the form. As you answer the questions, *TaxCut* fills out the form for you, eliminating the need for you to understand IRS terminology. This differs from *TurboTax*, where you can invoke tax assistance for any form, but the program never fills in the form for you. Two forms that were much easier to complete in *TaxCut* for this reason were the depreciation worksheet and Form 2119 for the sale of a home. Each of these forms includes numerous questions that can seem complicated to a novice tax preparer without the benefit of such advice.

Another impressive feature is thorough data integrity checking: *TaxCut* caught more mistakes in our tax forms than *TurboTax*'s Data Examiner did. *TaxCut*, in fact, performed data integrity checks on almost every field of the return. When we entered an incorrect year on Schedule D (for capital gains and losses), the program caught the error. It also flagged an incorrect state code and a Social Security number in the wrong format.

Overall, *TaxCut* provides more in-depth assistance for tax novices. It also has a more thorough error-checking feature than *TurboTax*. It does not, however, offer as streamlined a method of completing your returns, so you may get lost in the sea of tax forms, unsure of which to complete next.

YOU MAKE THE CALL

Although both packages are capable of reliably preparing personal tax returns, their divergent approaches make them best suited to different types of users.

Users with little tax background will prefer *TaxCut*. Its Expert function enables you to complete complex forms by answering questions rather than trying to decipher tax code. And its thorough data integrity check ensures that all the forms are filled out completely and correctly. But be prepared to spend some time reviewing the tutorial and supporting documentation.

Choose *TurboTax* if you have a basic familiarity with tax forms. The user interface is more streamlined, and the IRS audit advice is extremely helpful. You'll still have to read over your return carefully before submitting it, since *TurboTax* may not catch small errors such as missing names or incomplete Social Security numbers.

Suzanne M. Colvin, CPA, is a manager with one of the Big Six accounting firms.

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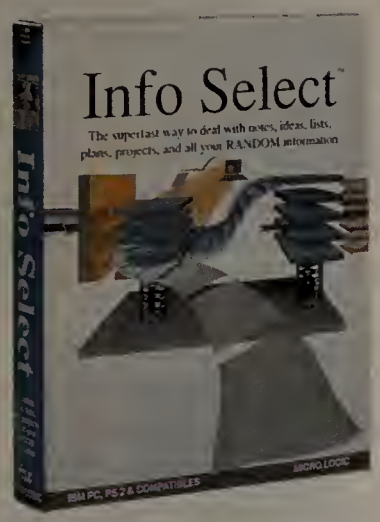

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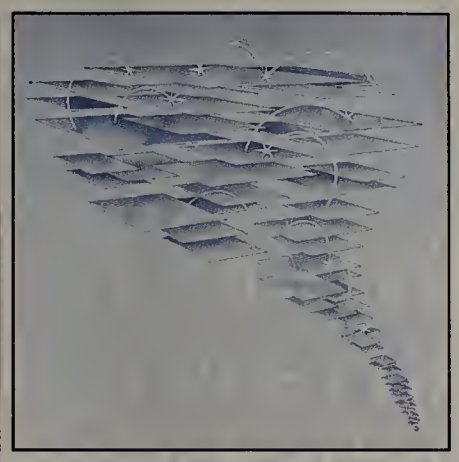

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101 SECRET TIPS

UNLOCK THE POWER OF DOS, WINDOWS, AND YOUR FAVORITE SOFTWARE.

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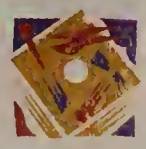

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PC World went to software masters for these power tips: contributing editors, the tech support staffs from a dozen software companies, leading book authors and consultants, and yes, our many readers who have spent long days and nights with the programs covered here. Their combined efforts have uncovered invaluable nuggets of information, many of them buried in or missing from manuals. We hope these hard-won tips make your PC a more productive, friendlier tool.

OPERATING SYSTEM AND ENVIRONMENTS

WINDOWS 3.0

1

Load Applications Automatically

You can save time by having *Windows* launch frequently used applications automatically at start-up, displaying them as icons, in windows, or full screen. Here's how: With a text editor such as Notepad, open the WIN.INI file in your *Windows* directory. At the top you'll see two lines, 'load=' and 'run='. Add to the 'load=' line the name of each application you want *Windows* to place automatically on the desktop as an icon. Use its full executable file name, including its BAT, COM, EXE, or PIF extension, and include the file's drive and path if the file isn't in a directory listed in the system's PATH. For example, **load=notepad.exe c:\windows\pif\word.pif** tells *Windows* to load *Word for DOS* and Notepad as desktop icons. Notepad hails from the default directory, while *Word* is run from the directory in the (previously created) WORD.PIF. The 'run=' line works similarly, except that it causes *Windows* to run each listed application in a window or full screen according to the Display Usage setting of the PIF file that controls the application.

You can also list associated data files on the 'load=' and 'run=' lines. When *Windows* starts, it will load or run each data file's associated program and then load the data file (provided the program is in the same directory specified for the data file, the directory specified in the program's PIF file, or a directory listed in the system's PATH). Save WIN.INI, and exit and reload *Windows* for the changes to take effect. —*Scott Dunn*

2

Quick Program Switching

Although pressing **<Alt>-<Tab>** toggles you between the two most recently used programs, you can also use it to cycle through every active program. Just hold down **<Alt>** and press **<Tab>** repeatedly. If you start from a full-screen DOS program, you'll see a menu bar with an

application title (such as 'Word') at the top of a blank screen. If you start from a windowed application, you'll see the highlight move from window border to icon name. When the desired menu bar, window, or icon appears, release the <Alt> key, and the program pops into view. —*Karl Koessel*

3

Copying Files Can Be a Drag

When you drag files between directory windows in the File Manager, *Windows* will either copy or move the files, depending on whether or not you hold down <Alt> or <Ctrl>, and whether the destination is on the same or a different drive. If you find this confusing, you're not alone—but watching the screen carefully can help you remember which keys perform which actions.

When you select a file and drag it to its destination, don't release the left mouse button. Instead, while holding down the button, press and release first <Ctrl> and then <Alt>. Watch the file's icon in its source window. If you release the button while the icon is missing, you will move the file to its new directory. However, if you release the button while the file's icon is visible, you will copy the file and preserve the original.

The file transfer won't take place until you release the mouse button, so you can press and release <Alt> and <Ctrl> in turn until you're sure which command you want *Windows* to carry out. If you decide not to copy or move a file, just drag the mouse pointer to a spot that isn't inside a directory window, and then release the button. —*Tom Swan*

4

Quickly Switch Tasks

Ever minimize *everything* on the desktop and find yourself staring at *Windows'* wallpaper, wondering what to do next? Ever lose a program in a stack of windows? Don't call Microsoft tech support—just place the mouse pointer anywhere on the desktop's background (visible around the edges of the screen when no application is running full screen or maximized), and double-click. Up pops the Task List, which neatly lists all active applications. Double-click the desired program's name, and its window will move to the top of the stack. Pressing **<Ctrl>-<Esc>** at any time will also summon the Task List. —*Richard Mann*

5

Replace File Manager With Norton Commander

Just because you use *Windows 3.0* doesn't mean you have to settle for the slow and cumbersome File Manager. If you follow these quick steps, you can get instant access to *Norton Commander*, a superior DOS shell, by pressing a key combination.

Run the PIF Editor, and create a PIF for *Norton Commander*. Optimal settings are KB Required, 0; KB Desired, -1; Display Usage, Full Screen; and Execution, Background. Select *Advanced*, and under Other Options, specify **<Ctrl>-N** as the Application Shortcut Key, then press **<Enter>**. Save the file as **nc.pif**.

Next, open WIN.INI with an editor like Notepad or SysEdit, and add **nc.pif** to the 'load=' line. Separate it from other programs on this line with a space. Save WIN.INI, and exit and restart *Windows*. Press **<Ctrl>-N**, and *Norton Commander* will jump into view. You can use all its features, including the capability to run other DOS applications. This procedure will also work for other file managers and shell programs, such as *Xtree*. —*John Walkenbach*

6

Attach Icons to Data Files

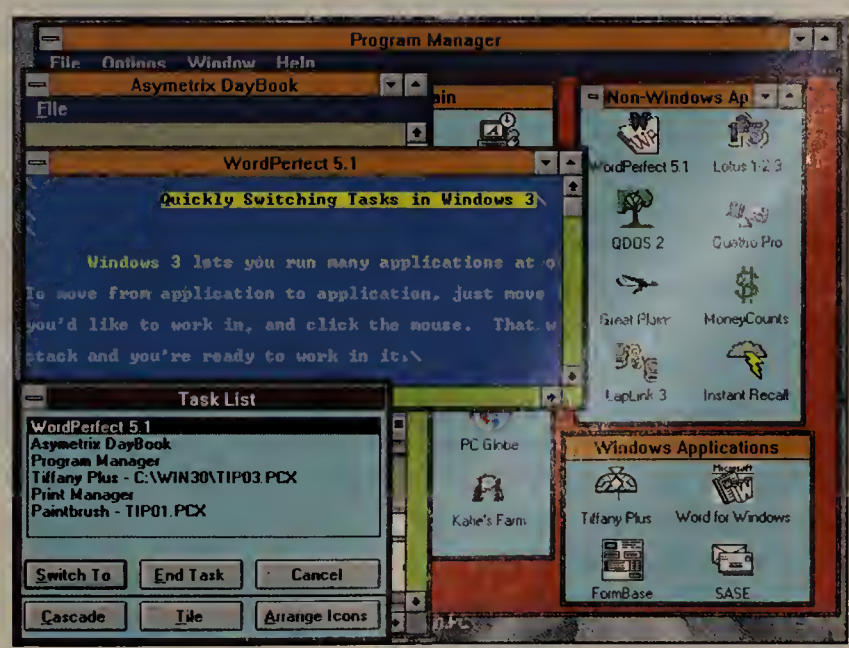
If you have a document, worksheet, or other data file that you use regularly, you can assign it to an icon that runs the appropriate application and loads that data file. To create a data icon, select the file's name in the File Manager, then select *File Associate*. In the resulting dialog box, type the drive, path, and file name (including extension) of the program that produces the data file, and select *OK*. Then, switch to the Program Manager, select a group for the new icon, and select *File New Program item OK*. For Description, supply a name for the icon; for Command Line, type the drive, path, and file name (including extension) of the data file. Select *Change icon* until an appropriate icon appears, then select *OK*. The data file will materialize on your desktop, ready for work. —*R. M.*

7

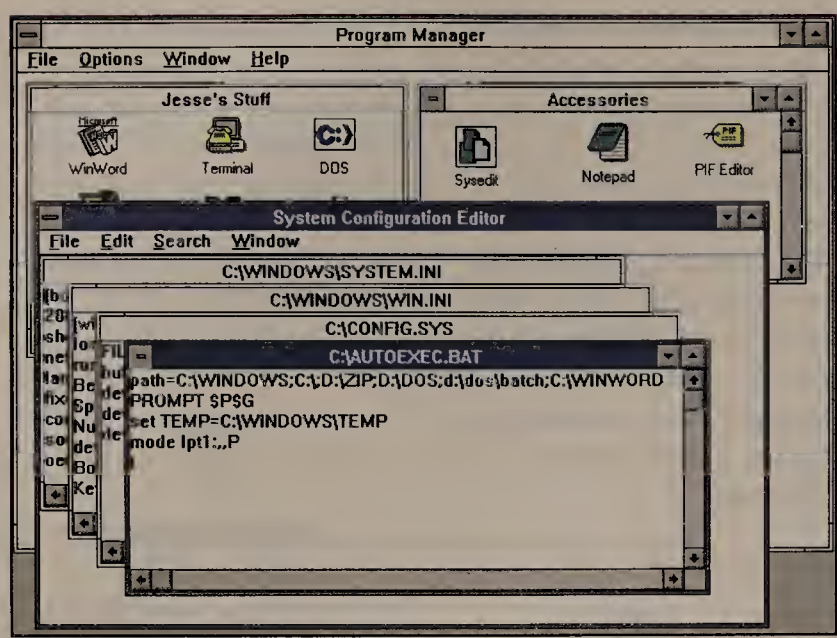
Quick Editing of System Files

For *Windows* users who frequently edit system files, there's a terrific time-saver called SysEdit. In the File Manager, just double-click SYSEDIT.EXE in *Windows'* SYSTEM subdirectory, and up pops a mini–text processor and four overlapping windows holding SYSTEM.INI, WIN.INI, CONFIG.SYS, and AUTOEXEC.BAT. You can jump quickly from window to window, inspect the files, and make changes. Double-click the Control menu box, select *OK*, and your changes are saved.

For some reason, *Windows* doesn't automatically install SysEdit for you. To add it to the Program Manager's Accessories group, take these *(continues)*



Can't find the tree for the forest? Double-click anywhere on the wallpaper to summon the Windows Task List. Double-click the program's name in the list, and its window will come to the foreground.



Run SYSEDIT.EXE in Windows' SYSTEM subdirectory to view and edit important system files. To move an underlying window to the top, just click on it. To save changes, simply quit.

steps: Select the Accessories window, and select *File New Program item*. Type **SysEdit** for Description; for Command Line, type SYSEDIT.EXE's drive, path, and file name, including extension. Click *OK*, and the SysEdit icon appears in the window. Now you're just a double-click away from instant editing. —*Jesse Berst*

8

Run DOS Programs in Windows—Automatically

If you run DOS programs in sizable windows instead of full screen, you can quickly flip from one program to the next by simply clicking its window. This also eliminates the annoying "screen shudder" that occurs on some systems when you switch from *Windows'* graphics mode to a DOS application's full-screen text mode.

To automatically run all DOS programs in windows, run the PIF Editor from the Accessories group and open _default.pif. This file dictates the default settings for all DOS programs that don't have custom PIF files. Change Display Usage from Full Screen to Windowed; if you want DOS programs to run in the background, check the Background box. Save the modified _default.pif file and repeat these steps for each custom PIF file. The next time you start a DOS program, it will appear in a sizable window. —*T. S.*

9

Free Up System Resources

Contrary to popular belief, simply upgrading your computer's memory won't necessarily let you run more applications simultaneously. In addition to the CPU, memory, and disk space, another key factor is "System Resources," an internal limitation that determines how many windows you can have open at once. You can check resources by selecting *About program manager* from the Program Manager's Help menu, or *About file manager* from the File Manager's Help menu. Low resources can limit your multitasking abilities.

To maximize resources, try setting the Wallpaper option to [None], limiting the number of windows you have open within a single application, and reducing the number of groups you use in the Program Manager. —*S. D.*

10

Free Up Disk Space

If disk space is tight, delete or archive unnecessary or seldom-used files. Print out all TXT files (such as 3270.TXT and WININI.TXT) for future reference, and then delete them. Erase any BMP files you don't want—these are used solely for adding a "wallpaper" image over your desktop. (CHESS.BMP, for example, soaks up over 150K.) Finally, if space is really tight, delete applications (and their help files) that you never

Among Windows' hidden icons you can find the right image for programs you add to Program Manager.

use, such as *Windows Write* (WRITE.EXE and WRITE.HLP), Calendar (CALENDAR.EXE and CALENDAR.HLP), and Solitaire (SOL.EXE and SOL.HLP). You can reclaim up to a megabyte of disk space. —*Robert Luhn*

11

Communications Without Crashing

Does your DOS communications program make *Windows* crash or slow it to a crawl? Turn off the Detect Idle Time option in the Advanced Options page of the program's PIF file. Otherwise, *Windows* assumes that a program waiting for keyboard input doesn't need much processor time, and so it allocates more processing to other tasks. This poses a problem when a foreground application—like a communications program—runs with little or no keyboard activity. With the Detect Idle Time option on, programs that run for long periods of time without any keyboard input may actually operate faster in the background.

Shutting off the Detect Idle Time option can also cure programs that fall asleep and won't accept keyboard input for several seconds. —*T. S.*

12

Finding Windows' Hidden Icons

When you add non-*Windows* applications to a Program Manager group, you're offered a choice of eight generic icons. But other icons are also available if you know where to find them.

Select the application icon you want to change, select *File Properties*, and select *Change Icon*. In the resulting Select Icon window, replace the default PROGMAN.EXE on the File Name line with **control.exe**, **setup.exe**, **winfile.exe**, **swapfile.exe**, or **sysedit.exe**. Then click *View Next* to flip through the icons hidden in the file. You can also find an icon built into the EXE file of each *Windows* accessory (Calendar, Calculator, Cardfile, Notepad, Paintbrush, and so on). When you find the icon you want, click *OK*.

You can add third-party icons in the same fashion. Check the public file area of CompuServe's *Windows* forum for homemade icons (mostly drawn with *IconDraw*, a shareware program also found there) or commercial collections, such as *IconPak I*, available from Software Workshop in Orem, Utah. —*R. M.*

DOS

13

Turn Off Num Lock

Nothing is more annoying than having to turn off Num Lock mode every time your AT or 386 boots up. However, it's easy enough to create a DOS utility that does the job for you. First, load BASIC, and type in the program in **LISTING 1** exactly as it appears. When finished, double-check the DATA lines, and save the file by typing **save"numlock"** and pressing **<Enter>** on a blank line. Then press **<F2>** (RUN) to create a program called NUMLOCK.COM. Move NUMLOCK.COM to a directory listed in your system's PATH command, and add the line **numlock** to your AUTOEXEC.BAT file after its PATH command. Now when you boot, Num Lock is automatically turned off. —*TJ Byers*

```
10 OPEN "NUMLOCK.COM" AS #1 LEN=1
20 FIELD #1, 1 AS CODE$
30 FOR I=1 TO 11
40  READ BYTE%
50  LSET CODE$=CHR$(BYTE%)
60  PUT #1
70 NEXT I
80 CLOSE
90 SYSTEM
100 DATA 184, 64, 0, 142, 216
110 DATA 128, 38, 23, 0, 223, 195
```

LISTING 1: This BASIC program creates NUMLOCK.COM, which turns off Num Lock automatically when you start your PC.

14

Easy Directory Deletes

Need to nuke a directory quickly—and safely? DOS's repeat command key, <F3>, can help by eliminating typing errors. First, ensure that you're not logged on to the directory you want to remove. Then view the files by typing **dir** *directory*. (After all, you don't want to delete the wrong directory.) To delete all the files in that directory, type **del**, and press **<F3>** **<Enter>y<Enter>**. Finally, to remove the directory, type **rd** and a space, and press **<F3>** **<Enter>**. If you receive an error because the directory still contains a child directory, repeat this procedure for the child directory—type **dir**, press **<F3>**, type \ (a backslash) and the child directory's name, and press **<Enter>**. —*Ken Smith*

DESQVIEW

15

Easy Word Processor-to-E-Mail Transfers

Here's a trick that will let you easily pour a long document into your E-mail program (or anything else) using a hot key and a couple of keystrokes. First, with your word processor's macro facility, write a macro that, when you press, say, <Alt>-E, saves the document as a specific ASCII file in a specific subdirectory, such as C:\MESSAGES\IMPORT.TXT. Then, start your E-mail program. Since most E-mail programs lack a macro processor, pull up *Desqview*'s macro recorder by pressing **<Shift>-<Alt>**. Select *Start script*, then press the key combination you want to assign to the macro (in this case, **<Alt>-E** again). When you're prompted for a script name, type **import Message** and press **<Enter>**. Use the E-mail program's commands to import C:\MESSAGES\IMPORT.TXT. To end macro recording, press **<Shift>-<Alt>**, select *Finish script*, press **<Shift>-<Alt>** again, select *Save scripts*, and press **<Enter>** to save the script under the default name *Desqview* recommends. —*William Goodrich*

WORD PROCESSING

WORDPERFECT

16

Deleting Consecutive Words

To delete consecutive words in *WordPerfect 5.0* or *5.1*, you would normally use <Alt>-<F4> to block the text before deleting it. But there's a quicker way: Place the cursor on the first word to delete, press **<Esc>**, type in the number of words to delete, and press **<Ctrl>-<Backspace>**. You can use this same technique to delete several characters. Just substitute **<Delete>** for <Ctrl>-<Backspace>. —*George Campbell*

17

Doing OR Searches

WordPerfect's search function handles only one search term at a time, a frustrating limitation if you need to sift through long files for several terms. You can do AND searches for multiple words (the found text must include all listed words in a specified order), but you can't perform OR searches (the text can include any of the words in the search string).

Fortunately, there's a partial work-around: Press **<F5>** to display the current directory in the List Files screen. Mark each file to be searched by pressing * . Press **f** (Find) and then **e** to search the entire contents of each file. At the prompt, type the search terms separated by commas—for example, **IBM,Compaq,Dell**.

WordPerfect will search the files quickly and display any files that contain one or more of the search terms. This method won't show you each occurrence, however. To find the words in the text, you must press **l** to look into each file and then **<F2>** to perform a standard search operation. —*George Beinhorn*

18

Reversing Directions

You're typing away in *WordPerfect 5.0* or *5.1* when you accidentally press <Page Down> or issue a command that moves the cursor far from your original position. How do you get back? *WordPerfect*'s Go To command is the answer: To return to the previous cursor position, press **<Ctrl>-<Home>** twice. —*G. C.*

19

Hiding and Searching for Comments

Most users call on *WordPerfect*'s Redline/Strikeout feature for marking work-group revisions, but using nonprinting comments is often more convenient. To create a nonprinting comment, press **<Ctrl>-<F5>cc** and type the text.

You don't have to delete comments from a document as you do with redline characters. You can hide them instead: Press **<Shift>-<F1>** to move to the Setup screen, then type **dec** to get to the Comments Display field. Press **n** to hide the comments or **y** to display them again. To remove comments selectively, you can search for and delete them: Press **<F2><Ctrl>-<F5>c<F2>** to search for a comment; press **<Backspace>y** to delete it. —*G. B.*

20

Mousing Around WordPerfect 5.1

One significant enhancement in version 5.1 of *WordPerfect* is mouse support. Here are some tips to get you started:

- You'll use the mouse more often if the menu bar is visible. To permanently display the menu bar, press **<Shift>-<F1>dmvy<F7>**.
- If you drop down into a menu and then decide not to make a selection, click the right mouse button to return to the editing screen.
- You can use the right mouse button to scroll through a document. Hold down the button while you drag the cursor to the top or bottom of the screen. The document will scroll until you release the button.
- On a three-button mouse, the middle button acts as the cancel key (<F1>). —*G. C.*

21

Unbreakable Blocks

Sometimes there's a block of text that you don't want split between two pages. To protect the block from a random page break, first press **<Alt>-<F4>** and mark out the block. Then press **<Shift>-<F8>y**. —*James Hopkins*

22

Quick and Easy Block Print

You want to print a few paragraphs of a *WordPerfect* file, but not the whole file. What do you do? Here are two options. You could block out the paragraphs with **<Alt>-<F4>** and save the block as another file by pressing **<Shift>-<F10>**. You'd then type a new file name, press **<Enter>**, load that file, and print it. An easier way is simply to mark the block and press **<Shift>-<F7>y** to print it. —*Lisa Hopkins*

23

Reveal More Reveal Codes

If you're desktop publishing with *WordPerfect*, you'll probably spend a lot of time looking at the Reveal Codes window, which can be toggled on

MY FAVORITE TIP

MAKING WORDPERFECT AND WORD DO WINDOWS

24 Both *WordPerfect 5.1* and *Word 5.0* will work under *Windows 3.0,* running either full screen or in scalable windows. However, there are a few potential glitches. Here's some advice to help you avoid problems:

- Never use *Windows'* Control menu to close a word processing session. By default, *Windows* will prevent this, but if you've checked the Allow Close When Active box in the PIF Editor's Advanced Options window for that program's PIF file, you could be inviting trouble. Exit with *Windows,* and not only will you lose data, but *Word* won't update its configuration or delete its temporary files, and *WordPerfect* will probably freeze up the next time you start it. Always quit a DOS program by using the program's exit routine.
- To use a mouse with either *WordPerfect* or *Word,* load the mouse driver in your CONFIG.SYS or AUTOEXEC.BAT as you do under DOS. If this causes a conflict, as it does with some non-Microsoft mice, set up your PIF file to run the word processor from a batch file, and load MOUSE.COM from the batch file before starting *WordPerfect* or *Word.* Note: Both programs can use a mouse only in full-screen mode. Put either in a window, and *Windows* takes control of the mouse.
- If you run *WordPerfect* simultaneously with other DOS programs under *Windows,* always launch *WordPerfect* first, or it may freeze.
- If *WordPerfect* freezes even when it's launched first, you're probably experiencing memory conflicts. Load *WordPerfect's* PIF file into the PIF Editor, and type '/ne' in the Optional Parameters field. This parameter tells *WordPerfect* not to use expanded memory, which often solves the problem.
- If you plan to run *Word* in a scalable window, avoid display conflicts with *Windows* by always starting *Word* in character mode. Load WORD.PIF into the PIF Editor, and enter '/c' in the Optional Parameters field. If you run *Word* full screen, however, you can use either character mode or graphics mode.
- *Word* users normally press <Alt>-<Space> to remove all character formatting. But *Windows 3.0* will trap this key combination and instead bring up the Control menu, putting *Word* in a window. The solution? Type <Alt>-X<Space> to return highlighted characters' formatting to normal.

—*George Campbell*

and off with <Alt>-<F3>. Moving and copying these codes in the Reveal Codes window is often much faster than using *WordPerfect's* formatting menus.

If you do a lot of formatting, you can enlarge the Reveal Codes window temporarily. Choose Setup by pressing <Shift>-<F1>, and type **der** to modify the Reveal Codes Window Size field. Enter a setting (in number of lines), and press <F7> twice. If you assign 18 lines, for example, 3 lines of the uncoded text remain at the top of the screen when Reveal Codes is displayed. —*G. B.*

25

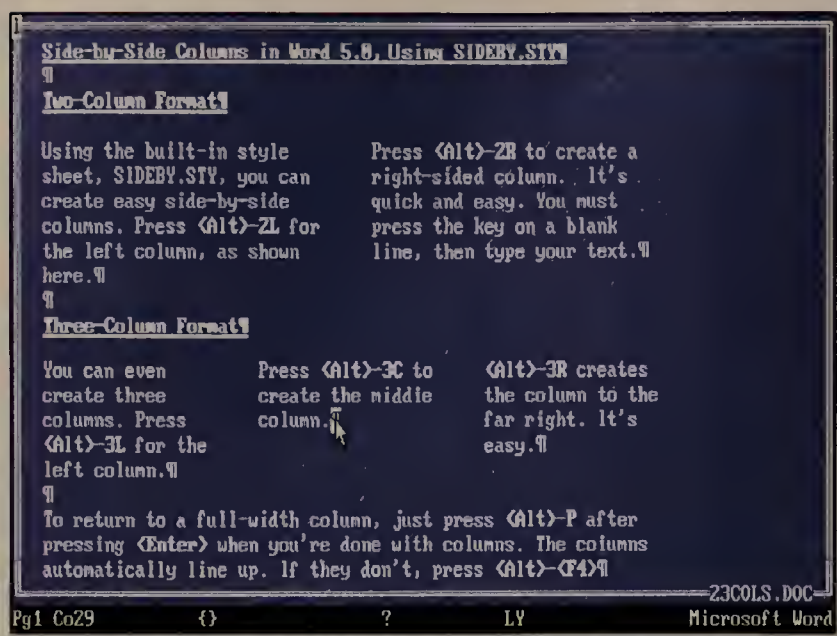
WordPerfect's Special Characters Versus IBM's

WordPerfect can produce an extraordinary range of characters, far outnumbering the extended IBM ASCII character set. Accented letters, foreign characters, and typographical symbols are among those available. If a character isn't supported by your printer's character set, you won't be able to print it at all using *WordPerfect 5.0,* but version 5.1 will print it as a graphic.

These special characters are grouped into sets, such as mathematical symbols or the Japanese alphabet. To call up a special character, press <Ctrl>-V, enter the set number, a comma, then the character number. For example, to get a lowercase *n* with a tilde (~) over it, you'd press <Ctrl>-V, type 1,57, and press <Enter>. However, many characters can be composed at the keyboard, obviating the need to remember obscure set and character numbers. To enter ñ simply press <Ctrl>-Vn~, and the charac-

(continues)

JEFF MAY



Multiple columns are a snap in Word with the right style sheet. Load SIDEBY.STY and follow the steps shown here. You can create two- or three-column layouts and even "balance" the length.

ter appears.

WordPerfect cannot display every special character. It displays only ASCII, IBM extended ASCII, and, with the proper video setup, special characters from its FRS screen font files; others are represented by square bullets.

The characters and their associated codes can be found in a file called CHARACTR-.DOC that is probably in your *WordPerfect* directory. If you print this document—all 12 sections and 33 pages of it—you will have a ready checklist of which characters your printer supports and which codes call them up. —*Bob Levine*

26

Putting On the Squeeze

Need to squeeze a little more text onto a page or expand text to fit a larger space? A little-known feature in *WordPerfect 5.0* and *5.1* lets you do just that. Called *tracking* in desktop publishing circles, this handy capability is buried three menus deep. Here's how to use it.

Position the cursor at the beginning of the text you want to track, and press **<Shift>-<F8>opw**. Press **p**, and type the percentage of change for spacing between words. Use percentages less than 100 to shrink, or more than 100 to expand. Press **<Enter>**. Press **p**, and type the percentage of change for spacing between letters. Press **<Enter><F7>**. Move the cursor to the end of the section you want to change, and then press **<Shift>-<F8>opwo** to return to normal text spacing. When you're done, press **<Enter>**. (Note: On most dot matrix printers, you can expand but not shrink character and word spacing.) —*G. C.*

MICROSOFT WORD

27

Parallel Columns With Style

Unlike *WordPerfect, Word* has no built-in tools for creating side-by-side parallel columns, which are used in such documents as price lists and parts description lists. However, *Word*'s SIDEBY.STY style sheet can help you do the job.

To use SIDEBY.STY, open a new document in *Word*, and press **<Esc>fsa**. Type **sideby**, and press **<Enter>**. If SIDEBY.STY is not in the current directory, include path information. If you're using version 5.0, press **<Alt>-<F4>** to display the columns. *Word 4.0* can't display side-by-side columns, but they will print correctly.

To create text in a left-hand column, type in the first paragraph and press **<Alt>-2l**. Then type text for the right-hand column and press **<Alt>-2r**. As long as you alternate the commands in this fashion, *Word* will generate balanced columns of equal depth. If you need three columns, use the commands **<Alt>-3l**, **<Alt>-3c**, and **<Alt>-3r** for the left, center, and right columns. If you need two or more paragraphs in a single column, repeat the appropriate command for each paragraph. —*G. C.*

28

Saving It All

Most *Word 5.0* users automatically save their documents using the **<Esc>ts** command. But for users who work with several documents on the screen or who often use style sheets and glossaries, there's a better way. If you press **<Esc>ta** instead, *Word* automatically saves all open documents, style sheets, and glossary files in one step. —*G. C.*

29

Machine-Gun Formatting

If you prefer typing a document and formatting it afterward to formatting on the fly, you can save keystrokes by using *Word*'s <F4> (Repeat) key. Select the first item to be formatted. Press **<Esc>f**, then press **c** for character formatting or **p** for paragraph formatting. Make the desired formatting changes, and press **<Enter>**. Select the next item to be formatted in

TABLE 1: SEARCHING FOR INVISIBLE WORD CHARACTERS

To search for and/or replace nonprinting "white space" in Microsoft Word, use these special aliases, consisting of a caret and a lowercase character.

To specify	Type
Paragraph marker	^p
New line character	^n
Tab	^t
Soft hyphen	^-
Division or manual page break	^d
Column break	^c
White space	^w
Nonbreaking space	^s

the same way, press <**F4**>, and repeat this step for each appropriate item.

You can use <F4> to repeat any single editing command, but you can't repeat multiple commands—implementing both character *and* paragraph formatting, for example. —*G. C.*

30

Searching for the Invisible

With *Word*, you can search for and replace characters that don't appear on screen, such as carriage returns, paragraph markers, tabs, and page breaks. Because these characters cannot be entered in a search or a replace field, use the appropriate code instead. Each code consists of a caret (^) plus a lowercase letter or symbol (see **TABLE 1**). —*G. C.*

31

Coping With Extrawide Documents

Word displays text monospaced at ten characters per inch. If you have a line composed of smaller, proportional type, *Word* wraps the text on screen at an earlier point than the printer will, making it difficult to edit. Fortunately, you can make *Word 4.0* and *5.0* display the real line endings by pressing <**Alt**>-<**F7**> (Show line breaks). Lines longer than your screen's width will extend past the right side of the screen, and you can scroll the screen to view more text using the <Cursor Right> or <End> key. To switch back to the normal display mode, press <**Alt**>-<**F7**> again. —*G. C.*

WORDSTAR

32

Quick Printing

Most *WordStar* users know that they can load a document from the DOS prompt by entering **ws** *filename* **d**. (For nondocument files, you'd type **n** instead of 'd'.) But with *WordStar Professional 5.0* and *6.0*, you can print a document in the same fashion. Simply type **ws** *filename* **p x**, and press <**Enter**>. If the file is in another directory, provide the necessary path information before the file name. The file will print using the default printing parameters. —*Ken Smith*

33

Stop That Dot

All versions of *WordStar* read any line starting with a period as a *WordStar* dot command or a comment and won't print such lines. To prevent words that begin with a dot (such as *.EXE* or *.BAT*) from causing *WordStar* to skip printing a line when paragraph reformatting places such a word at the left margin, prefix the dot with a text attribute, and then turn the attribute off. For example, pressing <**Ctrl**>-**PB** twice directly before such a word will ensure trouble-free printing. —*Karl Koessel*

SPREADSHEETS

1-2-3 2.2

34

Creative Comment

You can create comments in *1-2-3* that don't appear when you print your spreadsheet. To make room for a comment, use */Worksheet Insert Row* to insert a blank row, then enter the comment as a label in the leftmost column of your intended print range. Begin the label with the vertical bar character (¦) (for example, ¦**This line is a comment**).

Next, define your print range in the usual way with */Print Printer Range*, making sure that the comment begins in the leftmost column of the print range. When you print the report, *1-2-3* will skip the comment row. —*Richard Scoville*

35

Quickly Unhide Columns

Normally, you have to use /Worksheet Column Display to view hidden columns in *1-2-3*. A quicker way to view them from anywhere in the worksheet is to hit <**Plus**> while in Ready mode. All hidden columns and their contents will be temporarily revealed, and you can use the cursor to move around the spreadsheet. Hitting <**Esc**> twice hides the columns again, removes the plus sign from the Control Panel's entry/edit line at the top of the worksheet, and takes you back to where you began. —*TJ Byers*

36

If the Range Fits, Print It!

When you print *1-2-3* worksheets using the standard monospaced ten characters per inch on 8½-by-11-inch paper, it's helpful to know that the screen, with its eight columns of nine spaces each, exactly matches the width of a page, with standard margins at 4 and 76.

But what if you're using compressed print mode, a wide-carriage printer, or both? Let's say you're using compressed print at 16.67 characters per inch, and you've reset the margins to 1 and 132. How do you gauge the number of columns that will fit on a page whose lines are 132 characters long? Just make yourself a ruler: In a blank worksheet, enter the

(continues)

following labels into cells A1 and A2 (for reasons of space, only the beginning of each label is shown here; repeat the pattern until the labels are about 200 characters wide):

'12345678901234567890...
' 1 2...

Now save the worksheet in a file called **ruler.wk1**. Back in your original worksheet, go to the top of the print range, and insert two rows using */Worksheet Insert Row.* Then bring in the ruler worksheet using */File Combine Copy Entire-file,* and enter (or select) **ruler.wk1**. Now move to the right edge of the print range, and read off its character width on your ruler line. Adjust column widths until the print range fits within 132 characters. When you're finished with the ruler, just delete it with */Worksheet Delete Row.* —*R. S.*

37

More 1-2-3 Files on Your Screen

If you have a lot of *1-2-3* worksheet files in a single directory, the File Retrieve file listing, which displays only five files at a time, is hardly adequate. Luckily, this display can be expanded easily.

Press **<F3>** at the 'Name of file to retrieve:' prompt, and you'll bring up a full-screen, alphabetized listing that displays 105 files at a time, with the date, time, and size of the highlighted file at the top of the screen. You can navigate this listing with the standard cursor keys. —*Ross Parlette*

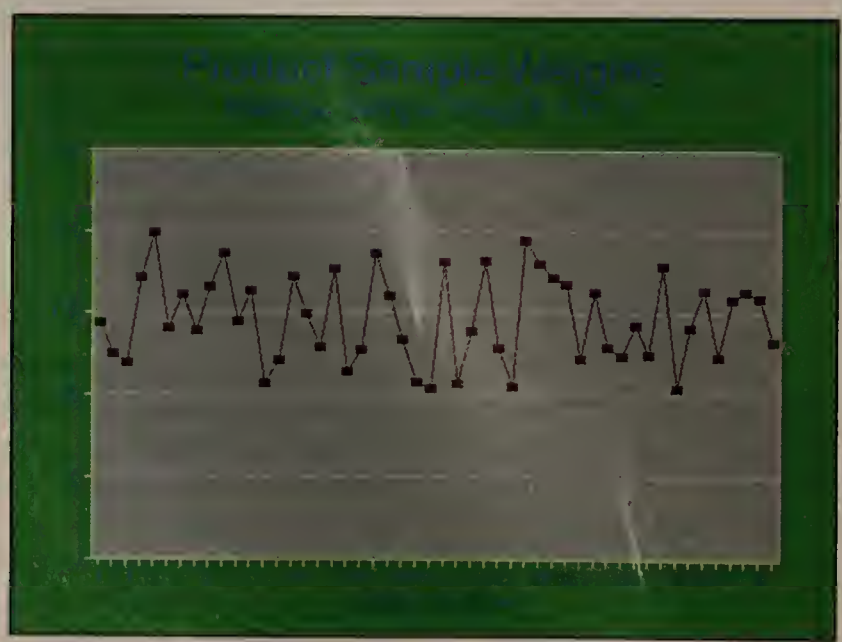
38

Speed Data Entry

Spreadsheet users know that using the numeric keypad is the fastest way to plug numbers into a worksheet. However, having to constantly toggle <Num Lock> or move your hand to another part of the keyboard for cursor control wastes a lot of time.

The problem can be solved by creating macros that automatically advance the cursor after you enter a value. In a blank worksheet, enter **'\a** in A1, **{?}{down}/xg\a~** in B1, **'\b** in A2, and **{?}{right}/xg\b~** in B2. Then name the ranges using **<Home>/rnlr <Cursor Down><Enter>**.

To run the first macro, go to the top cell of a column in which you want to enter values, and press **<Ctrl>-A**; then, with Num Lock on, enter your data on the numeric keypad using the keypad's <Enter> key. The data will appear in the cell and the cursor will skip to the cell below (or to the right with the \B macro), ready for the next number. —*TJB*



SCREEN 1: What if the Average Sample Weight changes from 147.2 to 2001? No sweat—this dynamic graph title will change automatically.

1-2-3 AND QUATTRO PRO

39

Dynamic Titles Change With Data

You can create dynamic titles and legends for your *1-2-3* or *Quattro* graphs. Let's say you're displaying the weights of product samples in a line graph, and you've entered 50 sample weights into cells B2..B51. You'd like the average of the sample weights to appear on the second line of the graph title. In cell C2, enter the formula **+"Average Sample Weight: "&@string(@avg(b2.b51),1)**.

This string formula converts the group average to text with @STRING(); the string operator '&' then joins it to the phrase 'Average Sample Weight'.

Use */Range Name Create* (in *Quattro, /Edit Names Create*) to give the cell a range name—for example, **title2**. Select */Graph Options Titles Second* (in *Quattro, /Graph Text 2nd line*), and enter **\title2**. When you view or print the graph, it will display the second title (in **SCREEN 1**, 'Average Sample Weight: 147.2'), and if the values in the data range change, the title will recalculate to display the new average. You can use the same trick in graph legends and, with *1-2-3 2.2,* in report headers and footers using */Print Printer Options Header* and */Print Printer Options Footer.* —*R. S.*

40

Fast Recalcs for 1-2-3 Ranges

Using *1-2-3*'s Calc function (<F9>) to recalculate a range in a large spreadsheet can be time-consuming. For quick range recalcs when automatic recalculation is off, use the Copy command. Just select */Copy,* and enter the relevant formula cells in both the 'Copy FROM' and 'Copy TO' ranges. When you press **<Enter>**, the program copies the range onto itself, recalculating all the included formulas in the process. —*Frank Miyazaki*

41

If It's Thursday, It Must Be 1-2-3 or Quattro

Neither *1-2-3* nor *Quattro* has a function that plugs the day of the week into a worksheet. Here's a quick formula that trains your spreadsheet to supply this information. Type the following formula into a cell: **@choose(@mod(@now, 7),"Sat","Sun","Mon","Tue", "Wed","Thu","Fri")**; the program will now yield the correct day of the week. —*R. S.*

42

Paint Ranges Faster

Suppose you have 150 data values in column B of a *1-2-3* or *Quattro* worksheet, and you want to place copies of a formula beside each one. Here's how to do it with the fewest possible keystrokes: Enter the formula into the first cell in column C, select */Copy,* and press **<Enter>**. For the TO range, press **<Period><Cursor Left><End><Cursor Down><Cursor Right><Enter>**. These keystrokes extend the TO range left over the range of data values in column B, then extend it down to the last data value, and finally unpaint the data values. —*R. S.*

QUATTRO PRO

43

Find Work Areas Quickly

In a well-organized application, it should be easy to trace the relationships between all the functional areas. But when you're working with many interlinked worksheets, it's easy to lose track of which file contains which table. An easy remedy is a table of contents linked to the various worksheets that lists the major areas of each worksheet and notes their location and contents.

Let's say your application consists of three data sheets —SOUTHEAS.WQ1, NORTHEAS.WQ1, and SOUTHWES.WQ1—that contain details of regional sales, and a summary sheet—SUMMARY.WQ1—that consolidates the regional results. To create a table of contents entry for the southeast region, open the southeast region worksheet and the summary worksheet, and select SUMMARY.WQ1. Select */Edit Names Create,* enter the name **sesales**, and at the Enter Block prompt, click on the title cell in the southeast region sheet. Choose an area in SUMMARY.WQ1 for the table of contents, and enter the formula **@cell("address", sesales)** there. This formula displays the file name and address of its target cell: [SOUTHEAS]A1. Enter a description in an adjacent cell, and repeat the process for other important work areas.

Because the table of contents is linked to the data sheets, it will maintain the correct reference even if you rearrange or rename the regional worksheets. —*R. S.*

44

Plot Multiple X-Axis Values

Quattro Pro's graphing function allows you to define only one *x*-axis series of values per graph. Here's a trick that lets you plot multiple *x*-axes against varying *y* values, as long as the data points are within a common range.

Begin by typing in the figures shown in **SCREEN 2**. All the *x*-axis values appear in column A. The first series of *y* values appears in column B, the second series in column C, and the third series in column D. Simply read across the row to find the *x,y* pairs. In row 12, for example, the *x,y* values are 7,6.

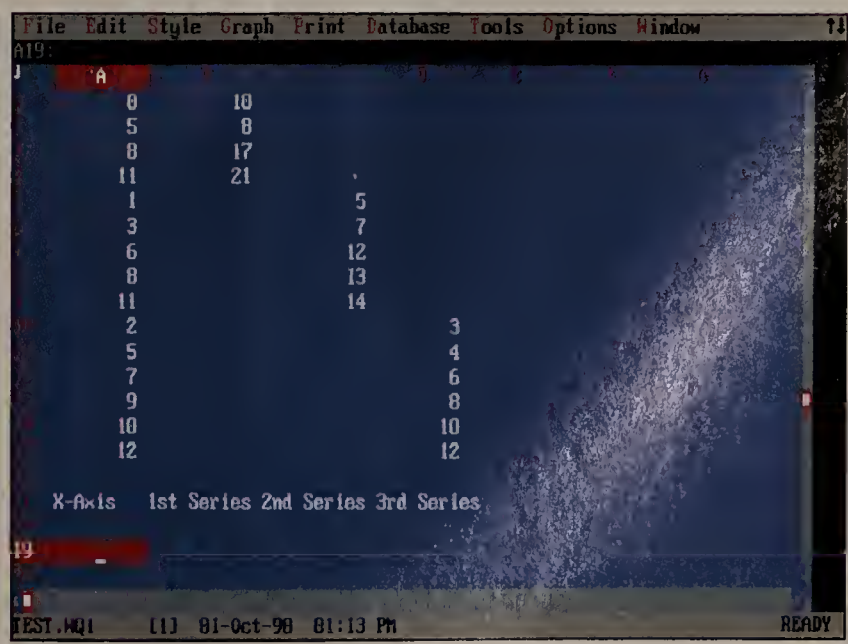
Next, select */Graph Series,* and enter **b1.b15** as the range for the first series. For the second series, enter **c1.c15**; for the third series, **d1.d15**. Finally, for the *x*-axis, enter **a1.a15** and select *Quit.*

MY FAVORITE TIP

RAPID RUNNING TOTALS IN ALMOST ANY SPREADSHEET

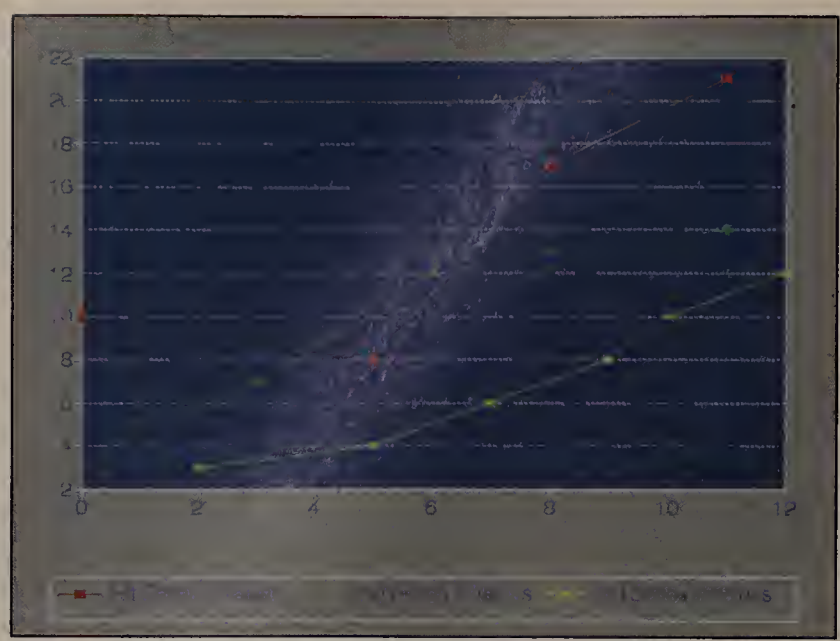
45 Here's a quick way to calculate a cumulative sum in *1-2-3, Quattro,* or *Excel.* Let's say you need to calculate the year-to-date profit in row 18 of a pro forma balance sheet. Row 17 displays the monthly profit values, beginning in column B. In cell B18, enter the formula '@sum(b17.b17)' (in *Excel,* it's '=sum(b17:b17)'). Copy this formula horizontally, and each copy sums a larger range—cell C18 contains @SUM(B17..C17), cell D18 contains @SUM(B17..D17), and so on. This method is much faster than creating a unique formula for each cell.

—*Richard Scoville*



SCREEN 2: You can create multiple x-axis graphs in Quattro Pro by staggering the sets of y values in separate columns and placing their x values in a single x range. SCREEN 3 shows the result for this data.

CHRIS SEWARD



SCREEN 3: Although Quattro Pro allows you to define only one x-axis, you can still create a multiple–x-axis graph (as long as the values are within a common range).

Now view the graph by selecting *View.* You can add a legend like the one shown in **SCREEN 3** by selecting */Text Legends* and typing in the text. —*Miles Musser*

MICROSOFT EXCEL

46

Print Multiple Areas

You can print several noncontiguous areas of an *Excel* worksheet with a single command. Suppose you want to print three ranges named Sales, Expenses, and CashFlow. Just select *Formula Define name,* and type **Print_Area** in the Name edit box (or select it from the Names in Sheet list box). Then type **=Sales,Expenses,CashFlow** in the Refers To edit box. Finally, choose *File Print. Excel* prints the areas in turn, beginning each on a new page. —*Charles W. Kyd*

47

Create Charts With Less Clutter

Most people use legends and markers to label lines in *Excel* charts. But doing so can often result in a cluttered, unreadable display, as in the chart on the left in **SCREEN 4**. Instead, you can label the lines with text, as the chart on the right shows.

You'll probably need to increase the length of the horizontal axis to provide room for the attached text. Select the axis, choose *Format Scale,* and increase the Maximum value as needed. To attach the text, simply click on the right end of a line, choose *Chart Attach Text,* press **<Enter>**, and then replace the resulting value in the formula bar with the appropriate text. To hide grid lines behind the attached text, select the text area, then choose *Format Font* and select *White out* in the Background box. Repeat these steps for the other lines. Your chart will be cleaner and easier to read. —*C. W. K.*

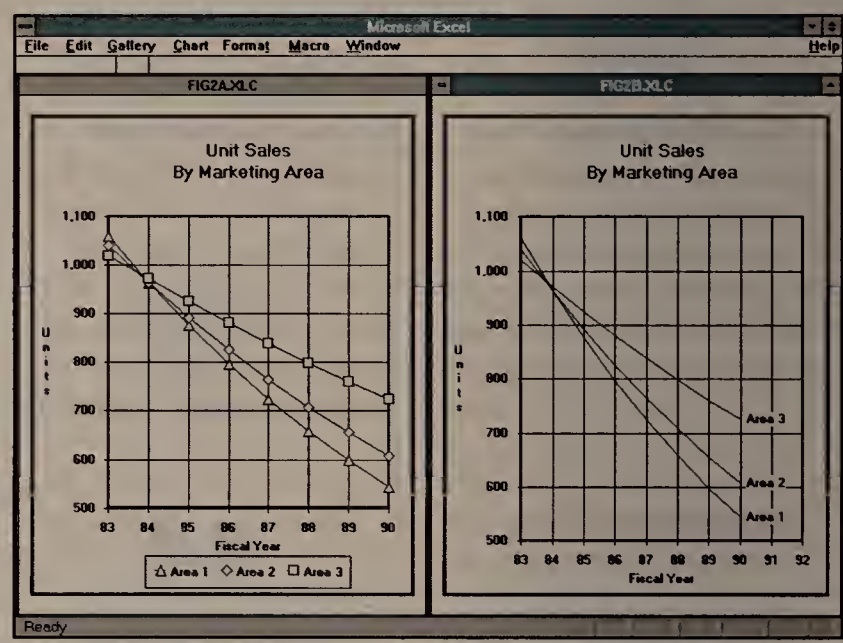
48

Make SUM Ranges Safer

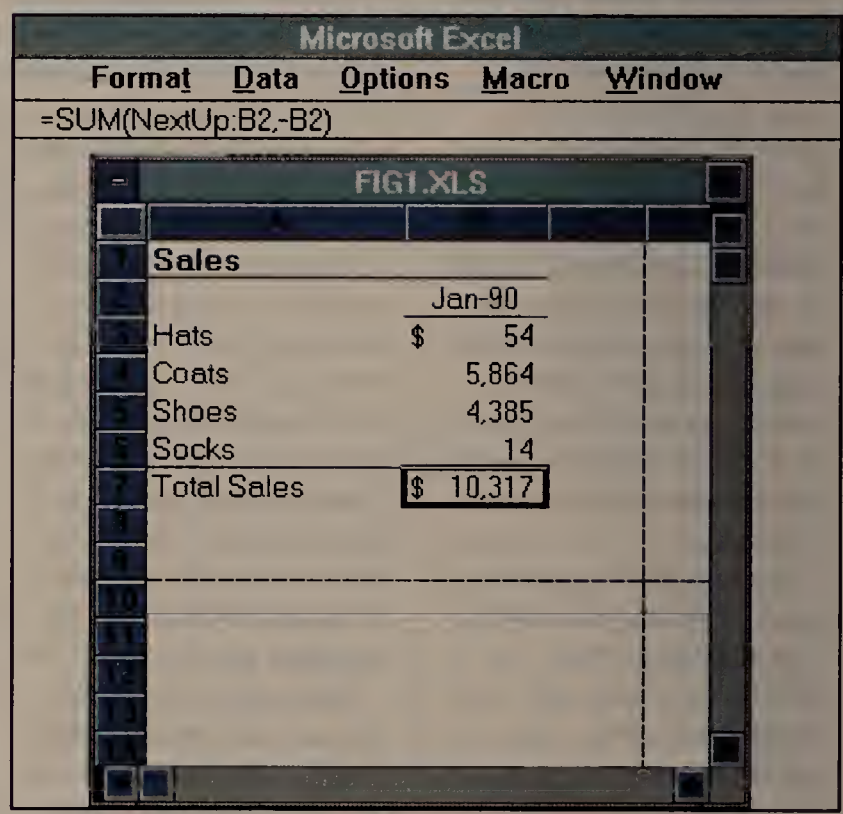
Most people use the formula =SUM(B3:B6) in cell B7 to add up the numbers in cells B3 through B6 (see **SCREEN 5**). If you insert a new row of data immediately above row 3 or below row 6, however, the SUM formula ignores the new data.

Here's how to create a safe SUM formula. First, enter the numbers in cells B3..B6 as shown in **SCREEN 5**. Put a date value in cell B2. To define the relative range name NextUp in cell B7, temporarily switch to R1C1 style by choosing *Options Workspace* and clicking on the R1C1 check box. Then, choose *Formula Define name,* and enter

(continues)



SCREEN 4: The chart on the right cleans up the clutter found in the chart on the left. Text labels are a quick way to achieve this effect.



SCREEN 5: Create the relative range name NextUp to protect your sum ranges from accidental errors. Note too that you can left-adjust dollar signs to approximate typeset output, as shown here.

dTruth Comes Out.

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Volume 7, Number 13

MULTIUSER DATABASE PROGRAMS

Ratings Key: ■ 7.0–10.0 ■ 5.0–6.9 ■ under 5.0

Software Digest Rating	Overall Evaluation	Overall Power	Program Name	Version Tested	Performance	Versatility	Error Handling	Ease of Learning	Ease of Use	Memory Requirement	Price	Volume Purchase Agreements	Page
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DOS

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NextUp in the Name edit box and **=r[-1]c** in the Refers To edit box. After selecting *OK*, switch back to the A1 style: Choose *Options Workspace*, and clear the R1C1 check box by clicking on it.

Then, in cell B7, enter the formula **=sum(NextUp:b2,-b2)**. Because NextUp is a relative cell reference, it always refers to the cell immediately above the cell containing this SUM formula, no matter how many rows you insert above cell B7. And because the sum range is anchored at the top of the column in cell B2, which contains a date value, the SUM formula subtracts this value to calculate the correct column total. —*C. W. K.*

49

Custom $ Displays

When financial data is typeset, it's common to display dollar signs flush left with the first and last values in each column (see **SCREEN 5**). But by default, *Excel* sets the $ right next to the number. Fortunately, you can easily modify *Excel*'s number formats to display the $ at the left margin.

To format cell B3 as shown, first select the cell, then choose *Format Number*, and select the number format: *$#,##0 ;($#,##0)*. Modify the format in the edit box by inserting an asterisk (the "repeat" character) and a space (the character you want repeated) after both dollar signs, producing this custom number format: **$* #,##0 ;($* #,##0)**. Press **<Enter>**, and the dollar sign in cell B3 will appear flush left as shown in **SCREEN 5**. —*C. W. K.*

DATA MANAGEMENT

dBASE

50

Date Stamp in a Flash

For a quick way to place the date in a field, a memo, or anything else, use the command **SET FUNCTION 8 TO DTOC(DATE())** from the dot prompt or in a command file. Then press **<F8>** anytime you want to enter the current date.

To have this function on hand whenever you load *dBASE*, place the slightly different command **F8 = DTOC(DATE())** in your CONFIG.DB file. —*Alan Schwartz*

51

Spell It Out

To save time and space, many *dBASE* users put abbreviations in programs, reports, and screens. But if you're presenting a report to your boss or creating a data entry screen for other users, the meaning of such abbreviations are about as obvious as Latin. Luckily, you can easily convert your abbreviations into full words with the help of *dBASE* string functions.

Say you have a single-character field called Colr that can hold 'R', 'W', 'B', or 'G', abbreviations for red, white, blue, and green. First, create a variable called *ColrWord* containing the text string **Red WhiteBlue Green** (the odd spacing—two spaces after 'Red' and none after 'White'—turns each color name into a five-character "word"). When displaying the contents of Colr on screen or in a report, use **SUBSTR(ColrWord,AT(Colr, ColrWord),5)**. This selects a substring that starts at the Colr letter and ends five characters later, revealing the entire color name. —*A. S.*

52

Pop-Up Memo Windows With Clipper

Clipper Summer 87 is versatile when it comes to memo fields, but if you want to create a pop-up memo window, you'll have to jot a bit of code. Thanks to user-defined functions, however, you don't have to write it more than once. By placing the code for MEMO_POP() (see **LISTING 2**) in a *Clipper* program, you can easily put a memo window on screen. Just call MEMO_POP() using this syntax: *variable* **=MEMO_POP(***T,L,B,R,variable***)**, where *T, L, B,* and *R* refer to the top, left, bottom, and right screen coordinates for the window, and *variable* is a memo field or text variable. (Note: In programs it's always safer to edit a variable and REPLACE the field on disk rather than edit the field directly.) —*Lincoln Spector*

53

Speed Up dBASE IV Queries

If you're sorting a query on a given field (putting 'asc' or 'dsc' under the field's name in the Modify Query screen),

(continues)

```
FUNCTION MEMO_POP
PARAMETERS t,l,b,r,memo_text
PRIVATE winbuf
winbuf = SAVESCREEN(t,l,b,r)
@ t,l CLEAR TO b,r
@ t,l TO b,r DOUBLE
memo_text = MEMOEDIT( ;
  memo_text,t+1,l+1,b-1,r-1)
RESTSCREEN(t,l,b,r,winbuf)
RETURN memo_text
```

LISTING 2: This Clipper function, MEMO_POP(), pops up in an on-screen box so you can easily edit memos.

JERRY SPAGNOLI

MY FAVORITE TIP

dBASE INDEXES WITH CHARACTER

54 Creating a *dBASE* index that's keyed directly to a numeric or date field is a common but restricting practice. If you want the flexibility to be able to index on more than one field (for example, to generate an alphabetized list of customer names for a specific day), you must index on character string values. So instead of indexing directly on numeric or date values, index on a *function* that converts such fields to text.

Writing code that creates such an index file is painless compared to modifying your code later. Numeric fields are easy to convert to text; the command 'INDEX ON STR(*numeric_field*) TO *index_filename*' will do the trick. Date fields are more complicated, at least in *dBASE III Plus,* since you have to extract the year before the month. The command 'INDEX ON STR(YEAR(*date_field*),4) + STR(MONTH(*date_field*),2) + STR(DAY(*date_field*),2) TO *index_filename*' will generate the desired results. In *dBASE IV, FoxPro,* and *Clipper,* date indexes are much simpler: 'INDEX ON DTOS(*date_field*) TO *index_filename*' is sufficient. —*Alan Schwartz*

having an index on that field will get you into and around in that query much faster, but you can't edit data in a sorted query unless the sort was done with an index.

When you're designing a query, select and turn on *Field Select indexes.* This puts a pound sign (#) in front of every indexed field. If you have index expressions that are more than simple fields, such as 'Lname + Fname' or 'UPPER(Company) + DTOS(DueDate)', these will appear at the end of your query table as virtual fields, prefaced by pound signs. If you avoid sorting a query on a field—real or virtual—that lacks a pound sign, your queries will be processed faster and will be more flexible. —*Ashton-Tate Technical Support*

PARADOX

55

Extracting a Month's Records

You can list all records for a given month by using the wild-card operator '..' for the day portion of a query. From the main menu, select *Ask,* type the name of your table, and press <**Enter**>. Cursor from field to field, pressing <**F6**> at each one you want displayed in the answer. Move the cursor to the date field you wish to query on, and type in a date, using the wild card for the day. For instance, to find all the July 1990 records, type **7/../90.** Press <**F2**> to display the query's answer. —*Borland Technical Support*

56

Table Quick Sum

It's easy to quickly sum a number field across an entire *Paradox* table. From the main menu, select *Ask,* type the name of the table in question, and press <**Enter**>. A Query-By-Example table will appear. Press <**Tab**> or the cursor keys to move to the field you want to sum, type **calc sum all**, and press <**F2**>. The total will appear in a separate window. —*Borland Technical Support*

57

Mass-Produced Validity Checks

It's not unusual to add the same picture validity check to more than one field, and an Instant Script can speed up this otherwise tedious task. With *Paradox* in Modify Edit mode, press <**Alt**>-<**F3**> to begin recording your keystrokes. Then press <**F10**> to call up the edit menu, and select *Valcheck Define.* Go to one of the fields where you want to add the ValCheck, press <**Enter**>, and select *Picture.* Type in the desired picture format, press <**Enter**>, then press <**Alt**>-<**F3**> to stop recording. To add this ValCheck to another field, simply position the cursor in the desired field and press <**Alt**>-<**F4**>. —*Celeste Robinson*

Q&A

58

Print Fields in One Column

Q&A's report generator isn't designed to print fields one below another in the same column, as in a list of names and addresses, but it can be tricked into doing it. For example, load *Q&A,* select *Report Design/redesign a report,* and load *Q&A*'s sample data base, EMPLOYEE.DTF, which includes typical name and address fields. For the report file name, enter **address list**, then press <**F10**> to bring up the Column/Sort Spec screen. Enter these field specifications: for Last name, **2,i,as**; for First name, **1,i**; and for Address, City, State, and ZIP, **3,i** through **6,i**. Press

(continues)

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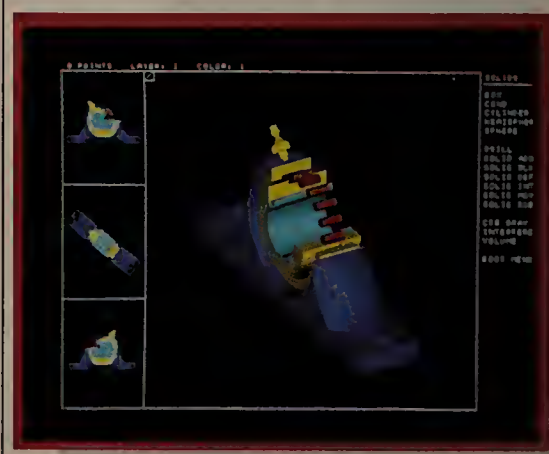

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```
Heading:
Formula: @text(30," ")
Column Spec: 7,i

Heading: 30:Name & Address
Formula: #1+" "+#2+#7+#3+#7+#4+", "+#5+" "+#6
Column Spec: 8,as
```

FIGURE 1: These two Q&A-derived report columns will let you print a name and an address together in one column.

<F8> to display the Derived Columns screen, and enter the specifications shown in **FIGURE 1**. When you print the report, the name, address, and so on will appear on separate lines. —*Symantec Technical Support*

59

Controlling the Q&A Cursor

When designing a *Q&A* data entry form, you can control how the cursor moves from one field to the next using a GOTO statement. With a payroll form, for example, you could enter a number in the Salary field, have calculated results appear automatically in the Paycheck and Tax fields, and have the cursor skip to the Dependents field.

The steps are pretty simple. Select *File Design file Customize a file*, enter the payroll form file name, and select *Program form*. In the Salary field, type **>#3:#4=#3/26; #5=#4*.3; goto #6**—this identifies field 3, puts the value of field 3 divided by 26 into field 4, puts the value of field 4 times .3 into field 5, and jumps the cursor to field 6. Label the Paycheck field **#4**, the Tax field **#5**, and the Dependents field **#6**. —*Jeff Walden*

60

Avoid Blank Fields

When designing a *Q&A* form, how can you make sure an important field isn't left blank during data entry? Select *File Design file Customize a file*, enter a file name, select *Restrict values*, and type **/=** in the desired field, with no value following the equal sign. This effectively tells *Q&A* that the contents of the field cannot be equal to a blank. During data entry, anyone trying to leave that field empty receives an error message. —*J. W.*

R:BASE

61

Escaping the Wrap of R:base

When using the SELECT command to query data, you may not want to show the full width of a column. Say you're working with the Company field. If the field is 40 characters long, and you want to display only the first 20, 'SELECT Company=20, Address=30 FROM ComTbl' won't do the job. Long company names will simply wrap onto other lines. To truncate a field, use the SGET() function, as in **SELECT (SGET(Company,20,1))=20, Address=30 FROM ComTbl.** —*Thomas J. Wessel, Jr.*

62

Sorting Pop-Up Menu Selections

In *R:base 3.0*, you can not only add a custom pop-up menu to any field of a data entry form, you can also sort the menu's entries any way you want.

To create the pop-up menu, select *Layout Field settings* from the Forms Create/Modify screen, and pick a field. In the Field Settings window, press **<PageDown>-<Enter>y** to indicate that you want a pop-up menu. Press **<Enter>** to move from one prompt to the next, and type the names of the table and column where *R:base* will find the menu options. You also can give the menu a title and specify its screen location now.

To sort the menu's entries, move to the WHERE Clause prompt. Since the WHERE function is designed to filter items, not list them, you have to use a little work-around. Enter the clause *colname* **is not null or** *colname* **is null order by** *colname*. The null statements tell WHERE to sort the menu entries. —*Microrim Technical Support*

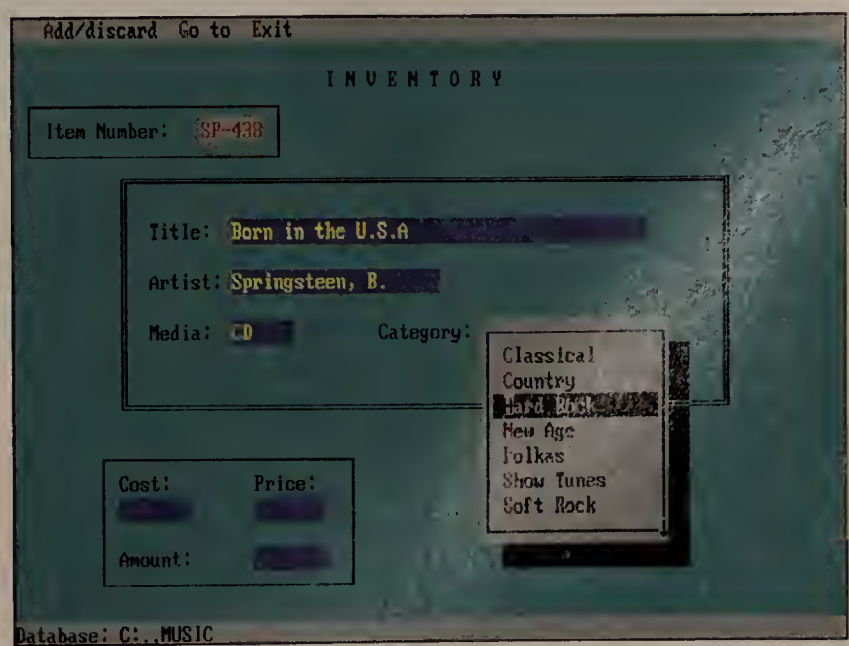
DATAEASE

63

Rounding It Out in DataEase

DataEase has functions for rounding up (CEIL) and rounding down (FLOOR), but it has no function for rounding to the nearest integer, either up or down. To force a fixed- or floating-point number to round to the nearest integer in field derivation formulas or queries, use **floor(***num* **+ .5)**, where *num* is the number field you're operating on. You can use a similar technique to round by larger units. For instance, to round a number to the nearest ten, type **floor((***num* **+ 5)/10) * 10**; to the nearest hundred, type **floor((***num* **+ 50)/100) * 100**. —*DataEase Technical Support*

(continues)



With R:base, you can add a pop-up menu to any field in a form and even set the order of the menu entries. The process involves a few R:base menu commands and a little bit of code.

64

Odd Sorts in DataEase

Sometimes you need to sort a field in an order other than numeric, alphabetical, or chronological. For example, inventory records for a clothing store might be sorted by size. This can be done by selecting *Dql Advanced processing Define Modify Format*. To sort by size and to display style, size, and amount fields, create a query like the one that is shown in **LISTING 3**.

Once the query is designed, you'll want to hide the IF field in the displayed query. To do this, select *Define Format* and use the Cut command (**<F3>**) to remove the unwanted column from the report. The data will still be sorted by size. —*DataEase Technical Support*

```
for forma ; list records
  if (Size = "Small", 01,
   if(Size = "Medium", 02,
    03)) in order ;
  Style ; Size ; Amount .
```

LISTING 3: This DataEase query will list data from a clothing store's inventory, sorted by size from small to large.

COMMUNICATIONS

COMPUSERVE

65

Economical EasyPlex Letters

Many savvy CompuServe users know that the fastest—and therefore cheapest—way to send CompuServe EasyPlex mail is to create letters off line. However, you may not know that you can also address your E-mail off line and save even more time and money. Simply embed addressing information at the top of the letter, and transmit it to CompuServe using EasyPlex's Compose option (instead of Upload). Here are the steps:

1. Load your word processing software, and on a blank screen type **to:** followed by a space and your recipient's user ID or on-line name.
2. On the second line, type **subj:** or **subject:**, type a space, and fill in the subject of the letter.
3. Type the letter, and below the last line type **/send**.
4. Save the file in ASCII format.
5. Log on to CompuServe, and type **go mail**. At the EasyPlex menu, press **2** to compose a new message.
6. With your communications software, upload your letter as an ASCII transmission.

CompuServe will send the letter immediately. The only prompt you will see reads 'Are your message and address correct? (Y or N)'. You won't have to spend time responding to address and subject prompts. —*Alfred Glossbrenner*

66

Oops! Undeleting EasyPlex Mail

Have you ever deleted an incoming message accidentally without first saving it to disk? Instead of asking the sender to resend the file, you can call on EasyPlex's handy undelete command. To bring back one or more messages, just type **undelete** followed by a message number or a range. For example, if you accidentally delete all four of your waiting messages, type **undelete 1-4**. The messages reappear, and you can redisplay them or save them to disk. You can undelete as many messages as you want, as long as they were deleted during the current session. —*A. G.*

67

Download EasyPlex Mail Fast

If you have EasyPlex mail and you follow the menus, CompuServe will show you one letter at a time, prompting you for the disposition of each one. A faster, cheaper way to pick up your mail is to open your communications program's capture buffer or ASCII download function and type **receive all** at the EasyPlex main menu prompt. EasyPlex will display each letter followed by a single confirmation prompt. Just press **<Enter>** after each prompt. This way you'll respond to one prompt between letters instead of several.

If you want to delete the letters from your mailbox once you've downloaded them, you can type **delete** at any menu prompt. However, if you

(continues)

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Minimum Hardware Requirements: IBM or compatible computer with 640Kb, hard disk, monochrome or color monitor, mouse optional, MS-DOS 2.1 or later for single users (3.1 or later for networks), 132 column dot matrix printer in compressed mode.

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Circle 7 on reader service card

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do, EasyPlex will prompt you again after showing each letter. To avoid the prompts, type **delete** followed by a space and a range of message numbers separated by a hyphen or a comma. For example, to delete the first three letters, type **delete 1-3**. To delete just the first and third messages, type **delete 1,3**. —*A. G.*

PROCOMM PLUS

68

Making Procomm Windows-Friendly

Can't get your copy of *Procomm Plus* to run under *Windows? Procomm Plus 1.0, 1.1, 1.1a, 1.1b,* and later versions all come with PCPLUS.PIF, a PIF file set up with *Windows 3.0* in mind. If you don't have this PIF file, create one with *Windows'* PIF Editor. Make sure you set both KB Required and KB Desired to **256**. Select *Advanced,* and set Background Priority to **100** so when you're running file transfers in the background, *Procomm* won't lose blocks of data. —*Judy Heim*

69

Modifying Predefined Scripts

Procomm Plus ships with log-on scripts for popular services, but they need to be modified slightly. Fortunately, you don't need to learn the script language to customize them—you can modify a script using *Procomm*'s built-in script editor (press **<Alt>-A**) or any other word processor that can save ASCII files.

Editing a sample log-on script is easy. For example, in order to modify the built-in CSERVE.ASP script used to log on to CompuServe, open the file in the script editor. Then replace the XXXXs following the three ASSIGN codes that start the script with your CompuServe phone number, user ID, and password. Also, if the second-to-last line of the script reads 'SET ENQ CIS', add a **B** so it reads **SET ENQ CISB**. This will let you bypass *Procomm*'s download menu. You simply answer CompuServe's download prompts, and *Procomm* will do the rest.

Save the modified script, and go to the dialing directory. To attach the script to the CompuServe entry, highlight the entry, press **r**, move to the Script option, type **cserve**, and press **<Enter>** six times. When you call CompuServe, the script should automatically log you on. —*Eric Brown*

70

One-Step Communications

Here's a tip that lets you run a script whenever you load *Procomm Plus*—one that automatically logs on to MCI Mail, for example. First, if you don't already have a log-on script for a service, create one. Make sure that the line 'DIAL "*x*"', where *x* is the entry's dialing directory number, appears toward the beginning of the script.

Then write a batch file like the one that follows, which you might give the name MCI.BAT. As you can see, executing the batch file loads *Procomm* (PCPLUS), bypasses the opening screen (/F), and automatically runs an MCI script (MCI.ASP):

```
cd\pcplus
pcplus /f mci.asp
```

Save the batch file as an ASCII file, and make sure it's saved in a directory referenced in AUTOEXEC.BAT's PATH command. If you have a script that you want run automatically when you load

(continues)

MICHAEL SEARS

MY FAVORITE TIP

ANALYZING PROCOMM PHONE LOGS WITH SUMMLOG

71 Would you like to know how much time you've spent on line with *Procomm Plus?* There's a handy public domain utility called SUMMLOG that can dip into *Procomm's* historical logs and break down on-line usage by year or month for each dialing directory entry you call.

You can find SUMMLOG on any major on-line service or BBS—scan for SUMMLOG.ZIP or SUMMLOG.ARC (SMMLOG.ARC on CompuServe's Datastorm forum). Download the file, and unarchive it with the appropriate archive utility.

Before you use SUMMLOG, make sure that *Procomm Plus's* call-logging feature is enabled: Load *Procomm,* and press **<Alt>-SGH**—if it reads off, toggle it to on by pressing the **<Space>** bar. Next, exit to the DOS prompt, and enter '**summlog pcplus.fon c** *filename*'. This command pours a complete summary of calls (name, phone number, number of calls, total time) made since you installed *Procomm* into the file you specified for *filename*. If you want only the current year, replace 'c' with 'y'; for a month-by-month breakdown, use 'm'. You can then view or print the resulting report that is contained in the output file. —*Judy Heim*

Procomm, save the script as **profile.asp** in *Procomm*'s subdirectory, and start *Procomm* using **pcplus /f** instead of a batch file. —*J. H.*

72

Punch Up Procomm Plus's Cursor

Having a hard time seeing the *Procomm Plus* cursor on your laptop screen? Use the command **pcplus /b** to load *Procomm Plus* in black-and-white video mode. Then go to the setup screen by pressing **<Alt>-S**, and save the new setting as the default by choosing *Save setup options*. The next time you load *Procomm Plus*, simply type **pcplus**. The cursor should be more readily visible. —*J. H.*

CROSSTALK XVI

73

Escape From Crosstalk XVI

Occasionally, when you're logged on to a mainframe or a minicomputer, you'll need to send an Escape sequence to grab its attention—if you want, say, to log off or to interrupt a function. To streamline this process, assign the appropriate Escape character sequence to a *Crosstalk XVI* function key. For example, suppose a host system requires you to issue Escape Q in order to exit a function and return to a system-level prompt. To assign Escape Q to <F10>, go to *Crosstalk*'s command line, type **FK 10 ^[Q**, and press **<Enter>**. Then type **save** and press **<Enter>**. When prompted, enter the name of the XTK file or parameter file for the host.

Since <Esc> is normally used as *Crosstalk*'s "attention" key—the key that you press to get a 'Command?' prompt at the command line—pick a different one so that *Crosstalk* won't go into command mode every time you signal the remote computer. At the 'Command?' prompt, type **at**, press **<Enter>**, and then press the key that you'll use for this task. —*J. H.*

74

Keep Script Commands Where They Belong

While some users have discovered that they can insert WAit and REply instructions at the end of a *Crosstalk XVI* XTK configuration file instead of in an XTS script file, it's not recommended. When the SAve command is later used to store any changes made to an XTK file, the script instructions are deleted. Script statements are more efficiently stored in an XTS file with the same name as the XTK file. The script will then run automatically after the XTK file has loaded and connected you to a remote system. —*J. H.*

CROSSTALK MK.4

75

Print a Block of Text

Crosstalk Mk.4's editor lacks an option to print a marked block of text. There is an easy way to do this task, however. First, mark the block by pressing **<Ctrl>-T** to mark the beginning and **<Ctrl>-B** to designate the end. (Before marking the end, move the cursor to the first character of the next line to include a carriage return/line feed.)

Press **<Alt>-A** to open the editor menu and **bw** to write the block to a file. When *Mk.4* prompts you for a file name, type **prn** and press **<Enter>**. (In versions 1.0 and 1.1, bypass the 'File Already Exists' prompt by pressing **<Enter>** again.) *Mk.4* will "write" the block to the printer, since PRN is the DOS device name for the default printer. (Note: If you're running multiple sessions, this trick may interrupt communications.) —*J. H.*

76

A Procomm-Style Dialing Directory for Mk. 4

The most welcome new feature in version 2.0 of *Crosstalk Mk.4* is its *Procomm*-like dialing directory. However, some users may find that the default display is somewhat limited, since each entry shows only the name, description, number of calls, and last time the number was called.

Fortunately, you can modify the display to your liking. Press **<Alt>-Y**, and cursor to the BookMode setting in the third column. Press /, and you can select from eight prefab formats to display the dialing entries' phone numbers, speeds, modules (terminal emulations), attached scripts, and modes (call or answer). Use the BookSort setting to specify which field to use to sort directory entries. —*E. B.*

77

A Pop-Up Notepad

Sometimes it's convenient to maintain a running log file to keep notes on each BBS or on-line service you call. By storing a few CASL commands to a *Crosstalk Mk.4 2.0* function key, you can create a note file for each service and easily access it while you're on line.

In the dialing directory, highlight the entry for which you want to create a note file. Press **<Alt>-S** for the setup screen, then **<Alt>-K** for the key-mapping screen. Move the cursor to an unused function key entry, and type **@window #14, zone 6 : edit #14, @name+'.NTS' : shut #14**. Then tab to the next field and enter a description.

Press **<Ctrl>-<Enter>** to save the setting. If *Mk.4* prompts you to enter a name for the function key settings file, enter the name of the dialing directory entry—the XTK extension is added automatically. Enter that name under the Keys setting in the setup menu; save with **<Ctrl>-<Enter><Enter>**.

Press the function key while on line, and a note file window opens on the upper right side of the screen. The file's name is the same as the dialing directory entry, but with an NTS extension. To open the edit menu, press **<Alt>-A**. To close the window, choose *Save*.

You can move the window to different areas of the screen by experimenting with the zone command. For example, changing to zone 2 will put the window at the bottom of the screen. You can also add color to the window by adding color commands after the zone command—for example, **@window #14, zone 7, color white on blue.** —*J. H.*

(continues)

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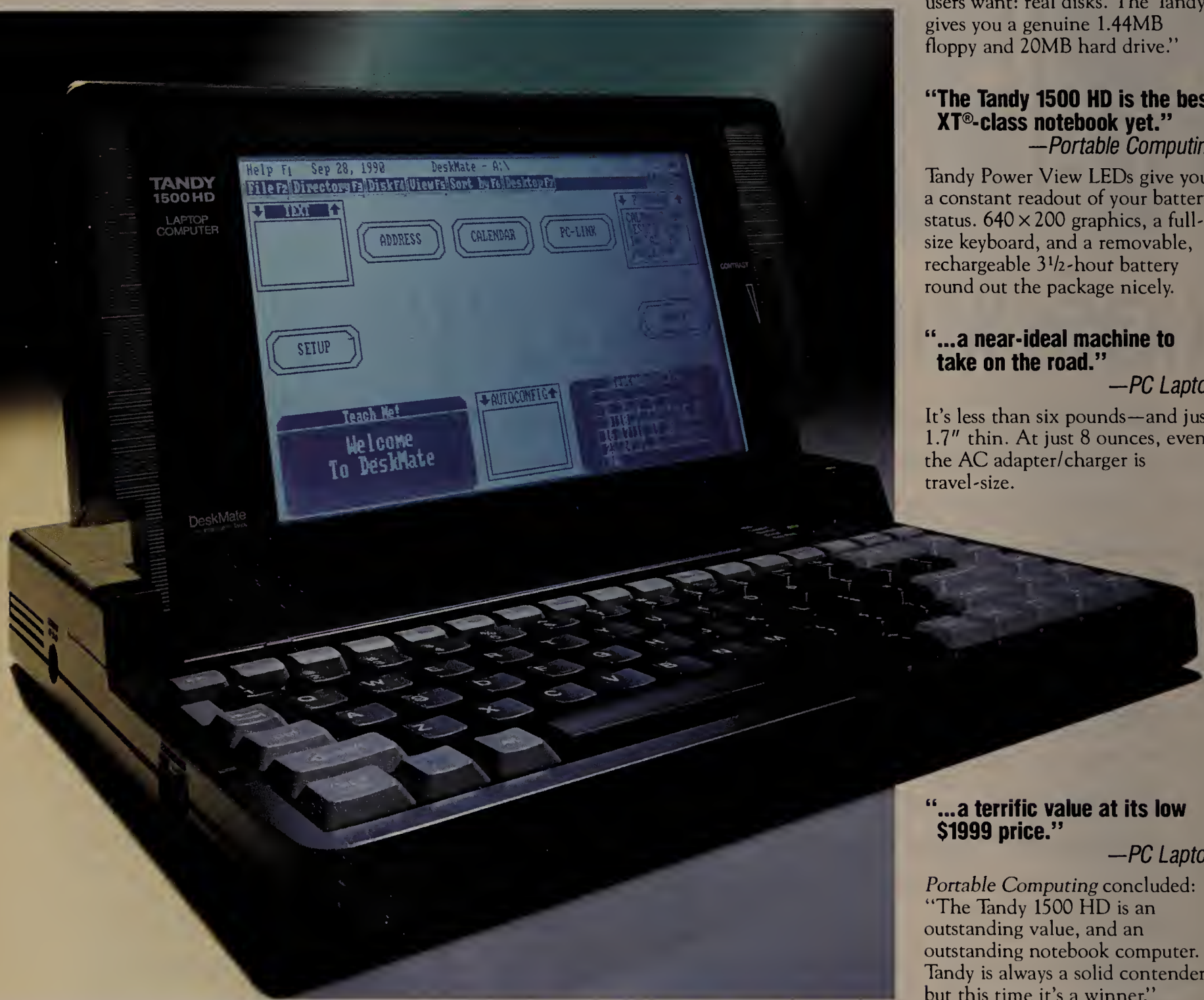

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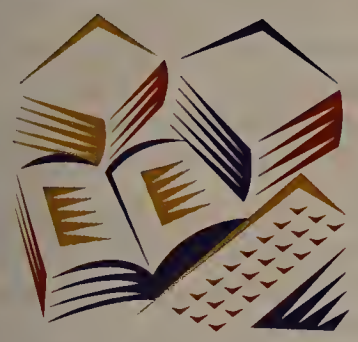
Circle 284 on reader service card

DESKTOP PUBLISHING



VENTURA PUBLISHER

78

Easy Overlays

Although *Ventura* is best known as a document processor, it's also a handy tool for producing overhead transparencies. In fact, *Ventura*'s spot color printing feature makes it a snap to produce a series of overlays (transparencies placed one atop another) for, say, displaying successive items on a bulleted list. Here's how.

First, assign a different color to the elements on each separate overlay. For example, on a word chart containing three bulleted items, use the Paragraph Font option to make the chart's title and first item black, the second item red, and the third one blue. (Note: Each bulleted item must have its own style tag.) Then select *File To print*, set 'Spot Color Overlays:' to *On*, and select *OK*. Ventura will print a separate transparency (in solid black) containing the text assigned to each color. Finally, mount the first transparency on its frame, and hinge each additional layer to it with masking tape—your *Ventura*-produced overlay is ready to go. —*Richard Jantz*

79

One-Step Call-Outs

If you produce documents using a lot of technical diagrams or illustrations, odds are you spend a lot of time drawing rules between each call-out (label) and the part of the diagram it identifies. But there's an easier way to "draw" horizontal rules and automatically link them to call-outs: *Ventura*'s Strike-through feature.

Here's how to place call-outs to the left of your diagram. First, make sure 'Options Show tabs & returns' is activated. Then, in Frame mode, draw a box for the call-out text and rule using the Box Text tool. Switch to Text mode, and specify *Paragraph Alignment Left*. Enter the call-out text, and hit **<Space>** until the end-of-file symbol is next to the item described by the text. Next, select the empty spaces and click on the *Strike-thru* text option in *Ventura*'s Argument List box. Voilà! A solid black rule appears automatically.

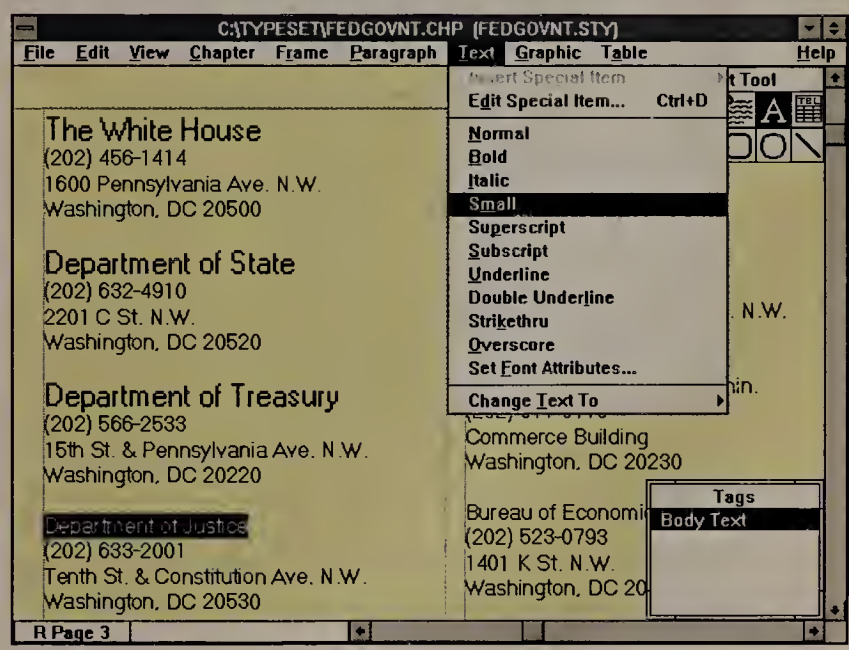
To place call-outs to the right of a diagram, simply reverse the above procedure, adding spaces in front of the call-outs. Need to change the thickness of the rule? Just select *Paragraph Attribute overrides*, and enter a new value for *Strike-thru height*. —*R. J.*

80

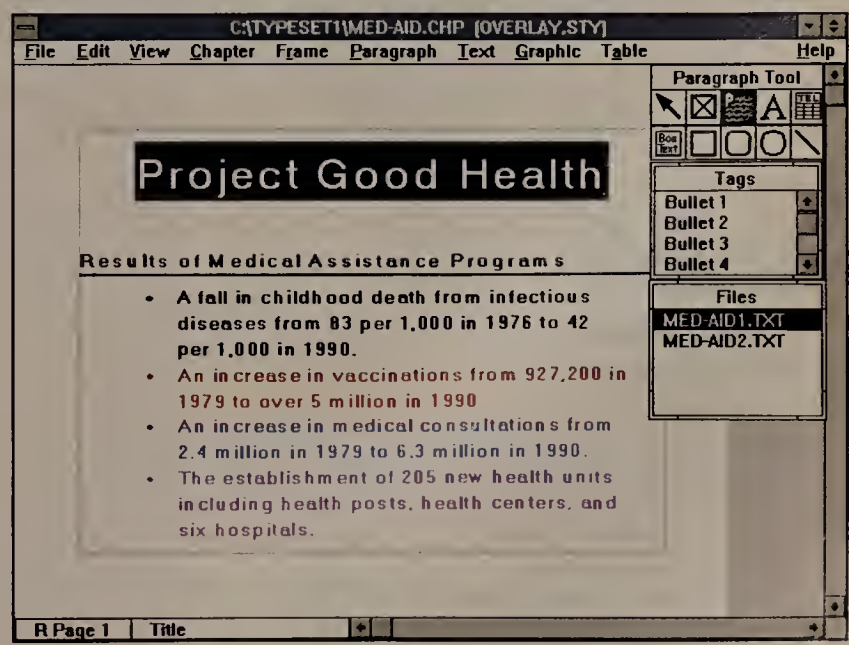
When Small Means Big

Looking for a quick way to enlarge a single character or word, such as an initial capital or a product name? *Ventura*'s *Small* text option actually lets you make text bigger without requiring that you use additional style tags or the Set Font button. To use this option, switch to Paragraph mode, and select the paragraph containing the text you want to enlarge. Next, select *Paragraph Attribute overrides*. At 'Small Cap Size:', enter the desired point size (say, **16** points), and click *OK*. Finally, to enlarge text to 16 points, use the Text tool to highlight the text, and assign it the *Small* tag from the Argument List box. —*R. J.*

(continues)



Need to quickly enlarge a small swatch of text? Instead of fussing with fonts, select the text and use Ventura's Small Cap command.



Ventura as presentation package? You bet—using Ventura's spot color printing feature, you can assign different colors to elements on the same page and print them out on separate transparencies.

MY FAVORITE TIP

HIDDEN TEXT IN VENTURA

81 Producing complex documents in *Ventura* is rarely a one-person show—and that means keeping track of multiple revisions and editorial changes for all of a document's text files. Fortunately, *Ventura*'s hidden-text feature makes it easy to insert notes or instructions that help track your document's history.

Using your word processor, you can insert hidden text anywhere in a text file. Simply precede the text with *Ventura*'s hidden-text prefix, $!, then enclose the prefix and text inside angle brackets—for example, '<$!This section edited 1/15/91 by RJ; still needs description of Figure 10>'. Although you can view the hidden text inside your word processor, it won't display or print in your *Ventura* chapter.

Hidden text is also handy for keeping alternate wording intact within a file, as well as for identifying important or sensitive information. —*Richard Jantz*

82

Quick Typographic Characters

Can't remember which keyboard shortcuts produce common typographic characters, such as an em dash? Don't reach for the manual. Instead, select *Desk Publisher info,* point at the question mark in the dialog box, hold down the left mouse button, and drag the pointer to highlight *Ctrl typographic chars.* Let go of the mouse button, and up pops the answer. Information on other keyboard commands for kerning, frame manipulation, and other operations is listed in the dialog box as well. —*Karl Anthony*

EDWARD CALDWELL

83

Widows Begone

Want a fast way to get rid of a three-character widow (like *ly.*) on the last line of a paragraph? Use *Ventura*'s interactive tracking feature. Just highlight the dangling characters and the previous line in Text mode, hold down **<Shift>**, and press **<Cursor Left>**. This reduces the spacing between characters (tracking) in tiny increments, which is often enough to move a few characters back to the previous line while leaving the text readable. —*R. J.*

84

Hyphenation Made to Order

If *Ventura* insists on hyphenating a word you don't want hyphenated, such as a company or product name (for instance, Foolproof Safes), you can suppress hyphenation by adding the word to the program's exception dictionary *without any hyphens.* First, load *Ventura*'s exception dictionary, HYPHUSER.DIC, into your word processor or text editor. Several words are already included in this file as examples. Insert alphabetically, on separate lines, and *in lowercase only,* any words you want to add. For example, insert **foolproof** on a line between the words 'fig-ure' and 'gen-er-ator'. After you've finished editing the file, remember to save it in ASCII format; *Ventura* won't be able to use it otherwise. —*R. J.*

PAGEMAKER 3.X

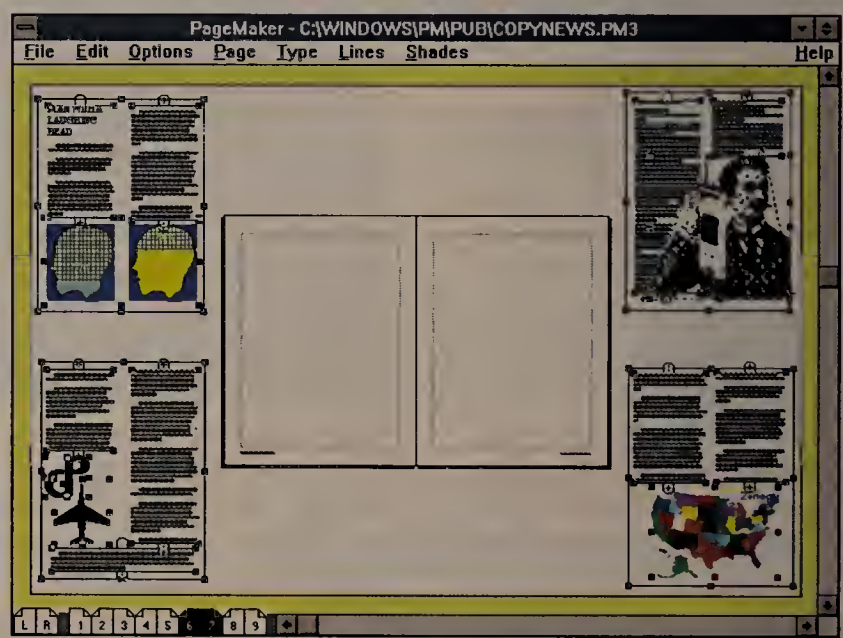
85

Pasteboard Copy

Want to copy a few pages from one *PageMaker* publication into another? Since there's no way to do it automatically, here's a workaround for moving three or four pages at a time that takes advantage of *PageMaker*'s fit-in-pasteboard feature.

Open the publication you want to copy from, and press **<Ctrl>-<Shift>-W** to display the entire pasteboard. Use the pointer tool to select an

(continues)



Cutting and pasting isn't limited to small items—you can transport entire pages. The secret: Move the pages to the pasteboard, copy them to the clipboard, then reopen the document and paste them in place.

HIGHLY RECOMMENDED

When Accounting Today (May 1990) asked accountants hich accounting software package they recommended to eir small business clients, an overwhelming 29% said they commend Peachtree Accounting– that's almost double the ext largest competitor.

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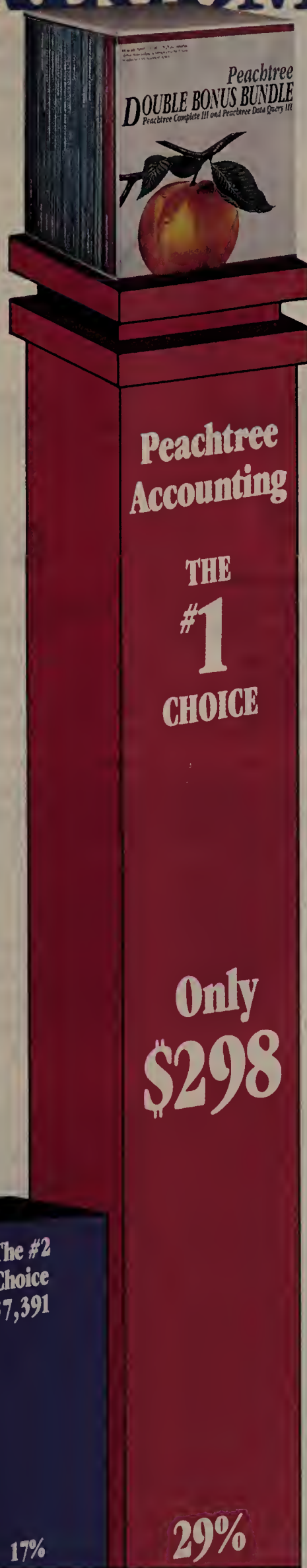

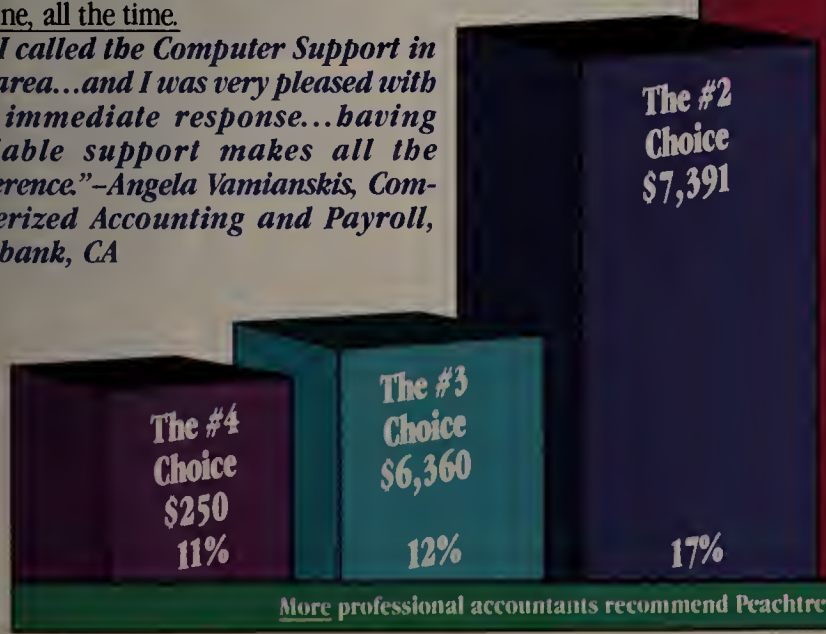

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entire page (by drawing a dotted line around it), then move the page contents onto the pasteboard. Go to another page or spread, press <**Ctrl**>-<**Shift**>-**W** again if necessary, and repeat the process. You should be able to store an entire 8½-by-11-inch page in each corner of the pasteboard. Next, use the pointer tool to select all contents on the pasteboard, and copy them to the clipboard. Then close the publication without saving it (so the original remains unchanged), and open your new publication. Press <**Ctrl**>-<**Shift**>-**W** to display the pasteboard, and paste the clipboard contents onto it. Now you can proceed to select and move each page off the pasteboard to its new location. —*R. J.*

86

Cutting Documents Down to Size

While it's a good habit to use *PageMaker*'s Save command frequently when working on a publication, it's often better to use the Save As command instead, and select *Yes* when the program asks if you want to replace the existing file. The reason? The Save command appends changes to the end of the file, which means your document may continue to grow in size even after you've deleted text or graphics. Save As, on the other hand, eliminates all deleted elements from the previously saved version—reducing file size two to three times or more. (Note: Using this technique means you cannot use *PageMaker*'s Revert command, which is handy if you make an unrecoverable error and need an earlier version to work on.) —*R. J.*

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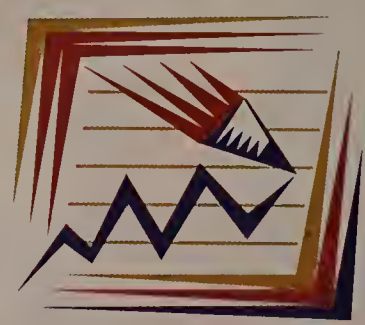

HARVARD GRAPHICS

87

Create Impressive Bar-Chart Buildups

A buildup is a series of charts displayed in a *Harvard Graphics* ScreenShow. Each subsequent chart adds a series.

The trick to buildups is to use the same *y*-axis on all charts. To create a bar-chart buildup, first construct the full bar chart with all series displayed. Note the highest value on the *y*-axis, and enter this number as the maximum value for the *y1*-axis on page 3 of the Titles & Options form. Enter **0** for the minimum value. Now save the chart. To create the remaining charts for the buildup, change the data in one series to zero and save the chart using a different name. Change the next series data to zero, save it, and so on.

To display the buildup, place the charts in your ScreenShow in reverse order. (The chart with all series set to zero should be placed first; the chart with all series displayed should be placed last.) Use a Wipe Up draw transition to display each chart—don't use an Erase transition. When the charts are displayed in the ScreenShow, the bars will grow successively from the bottom of the chart frame. —*Cary Jensen and Loy Andersen*

88

Exporting PostScript Pictures

A great way to add top-quality charts and graphs to documents is to create them in *Harvard Graphics*, then export them to your desktop publishing package as Encapsulated PostScript (EPS) files so you can print them on a PostScript printer.

After you select *Harvard*'s *Export picture* option from the Import/Export menu, type in a file name. At the 'Picture quality' option, select *Standard* (rather than High). A "high-quality" EPS file uses *Harvard Graphics* fonts, while a "standard-quality" EPS file uses the printer's resident fonts—and PostScript fonts are usually more elegant and legible than Harvard fonts, especially in smaller sizes. Another big advantage to using PostScript fonts: The picture file is much smaller (for instance, 10K instead of 148K) and prints much faster. —*Richard Jantz*

89

Special Slide-Show Buttons

In addition to buttons 1 through 10, you can add seven predefined special buttons (see **TABLE 2**) to make your slide shows easier to use. To create a special button, use the Draw/Annotate command or the *Draw Partner* drawing program to add a button to a chart, and then assign the button one of the special-button numbers (211 through 217). Because the special buttons' effects are predefined, you'll find them even easier to use than buttons 1 through 10, which you must define from the HyperShow menu. —*C. J. and L. A.*

(continues)

TABLE 2: HARVARD GRAPHICS' SPECIAL HYPERSHOW BUTTONS

In addition to ten custom buttons, you can add up to seven special buttons with these predefined effects to your chart slide shows.

Button Number	Effect
211	Displays preceding HyperShow slide
212	Displays following HyperShow slide
213	Displays first HyperShow slide
214	Displays last HyperShow slide
215	Pauses HyperShow
216	Displays data form for current chart
217	Terminates HyperShow

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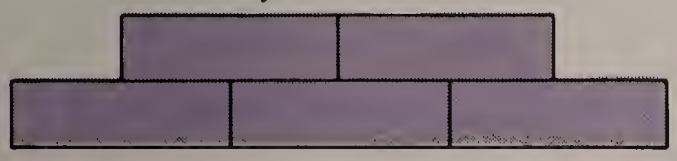

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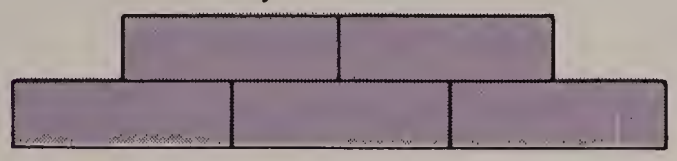

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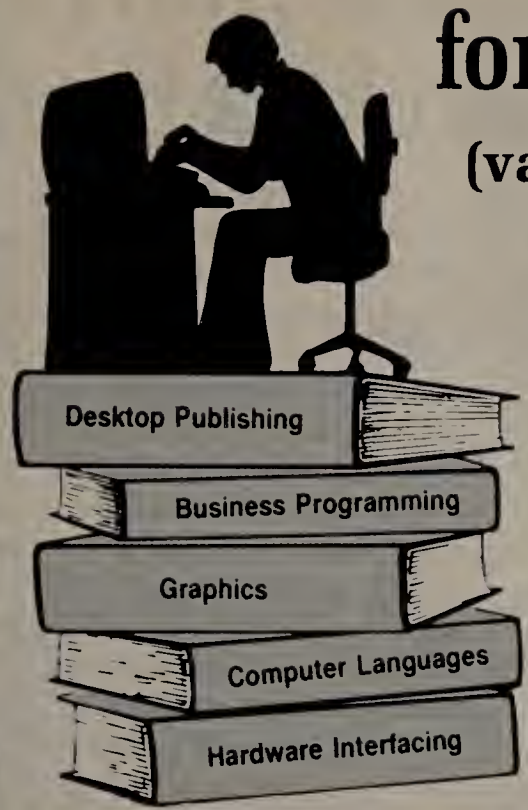

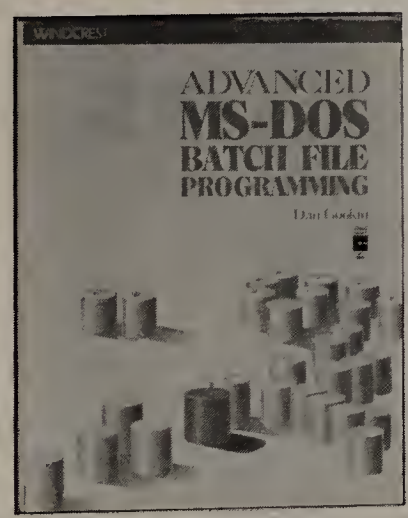

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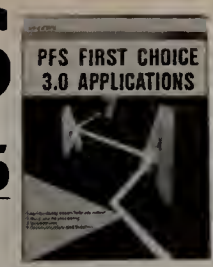

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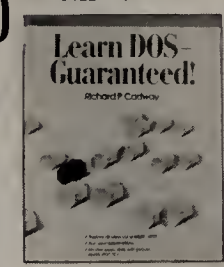

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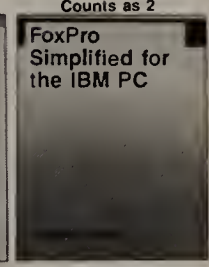

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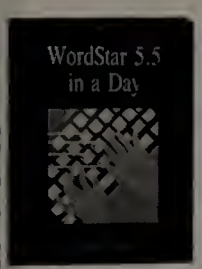

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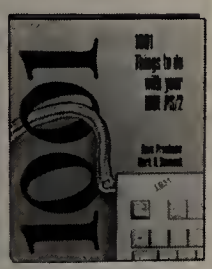

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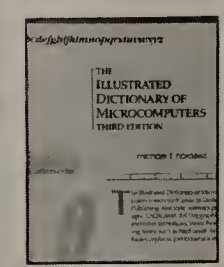

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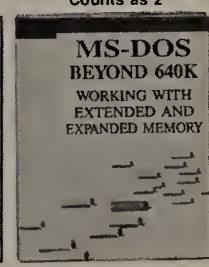

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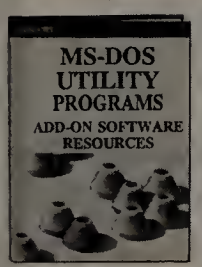

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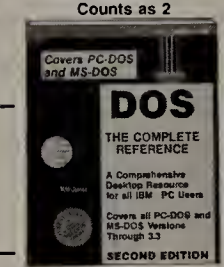

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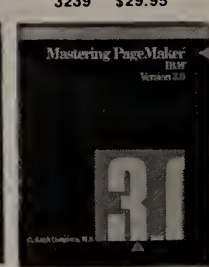

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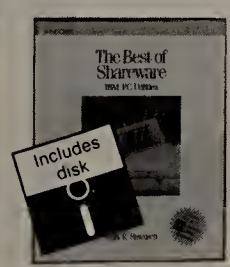

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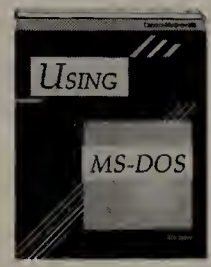

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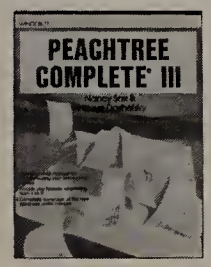

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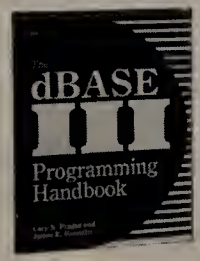

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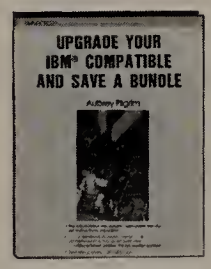

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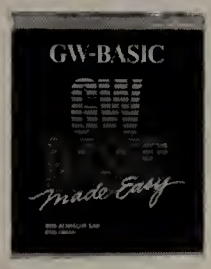

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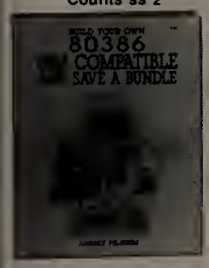

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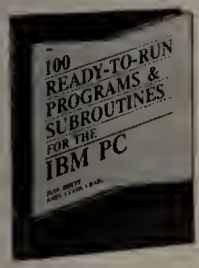

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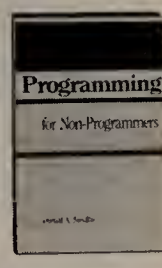

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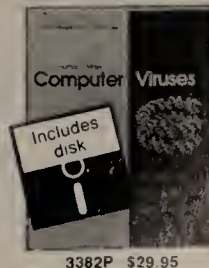

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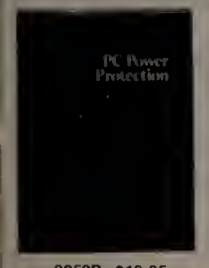

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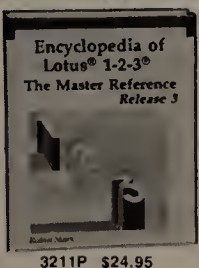

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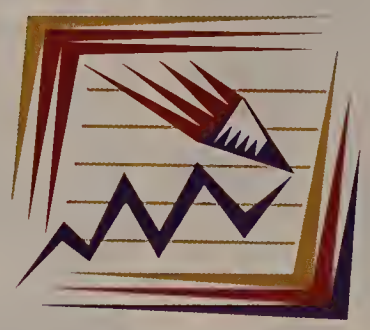

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Fonts Unlimited

Why limit yourself to the 35 type families packaged with *Corel Draw* when you can add truckloads more? By using Corel's WfnBoss utility, you can convert fonts from Adobe, Bitstream, Compugraphic, and other type vendors for use in *Corel Draw.* Once converted, these fonts appear as choices in the program's type selection dialog box, along with Corel's standard fonts.

To use this utility, double-click on the WFNBOSS.EXE file in the *Corel Draw* subdirectory. In the WfnBoss Font Conversion window, indicate which type of font (Adobe or Bitstream, for example) you want to convert, and where the original font files are stored. WfnBoss will then find all fonts available for conversion and prompt you with defaults the rest of the way. To get access to the converted font files, simply exit *Windows* and restart *Corel.*

—Richard Jantz

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Guidelines to Better Drawing

Create your own guides in *Corel Draw* using lines with a weight of 'None'. Lines with no weight show up in drawing mode, allowing you to use them as points of reference, but they don't print (or display in Preview).

To create guidelines, click the Outline tool and choose a default line weight of *None.* Open the Display menu, and select *Snap to grid* if desired. Then draw straight lines using the Pencil tool, holding down <**Ctrl**> if you want the lines constrained to vertical, horizontal, or 15-degree increments. Watch the status line to set guidelines at other angles.

If you do technical drawings, you can use this technique to set up major grid lines that give you more immediate visual feedback than *Corel's* status line or rulers do. If your work tends more toward illustration, you can quickly establish guidelines to the vanishing point of a drawing with perspective.

—James D. Larkin

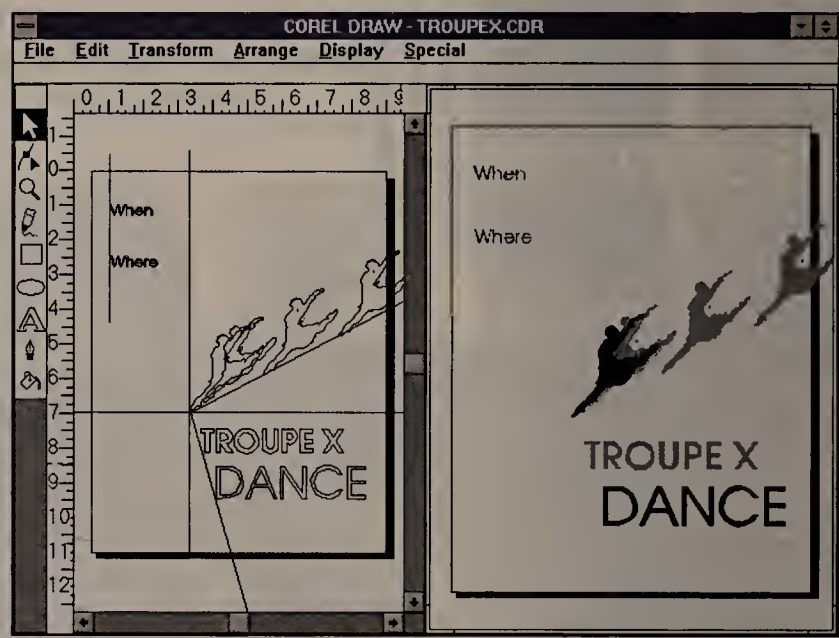
92

Name That Font

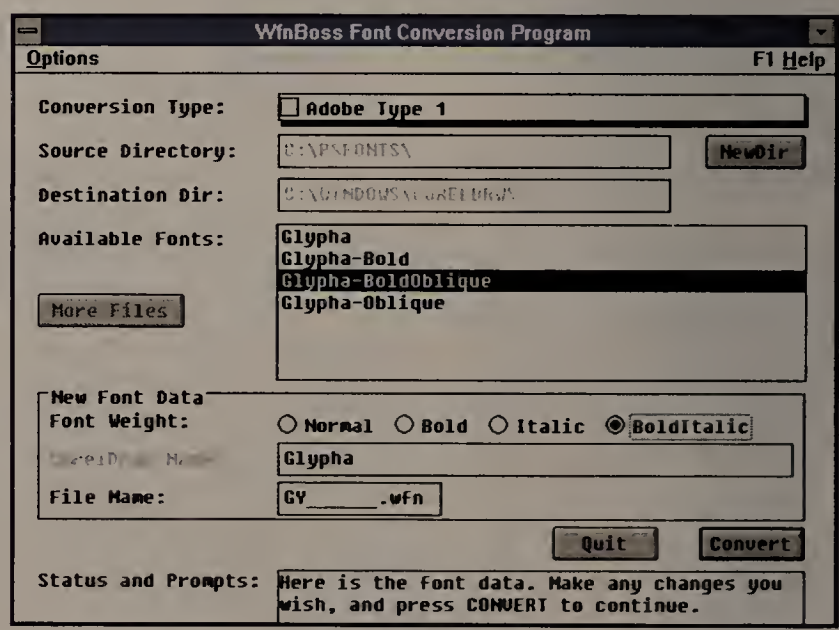
Corel Draw's standard fonts resemble many popular typefaces in everything but name. Since the original fonts are copyrighted, Corel must use different names to identify its knockoffs, and sometimes it's hard to remember that Corel's Ottawa and Toronto are actually versions of Optima and Times. But just because Corel had to use equivalent names doesn't mean you have to. By editing your WIN.INI file, you can give those obscure font names their more common monikers. Here's how to do it.

Using the *Windows* Notepad, open WIN.INI and go to the section titled [COREL-DrwFonts]. Using the *Corel Draw* Typeface Reference Chart as a guide, change each Corel equivalent font name to the common font name (for example, 'New_Brunswick' to **New_Century_Schoolbook**), using the underscore key to indicate spaces between words, if necessary. Do not alter the remainder of each line, however, as it contains

(continues)



Corel lacks vertical and horizontal drawing guides, but you can make your own by creating lines with a weight of 'None'—this prevents them from printing, but you can use them in drawing mode.



Adding more fonts to Corel is a snap with the WfnBoss utility. Simply specify the font type and location and answer a few prompts. Reload Corel, and the fonts are at your beck and call.

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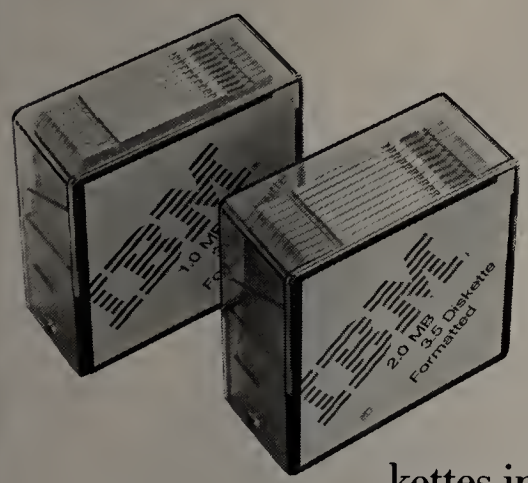

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information the program needs to find the actual font files.

When you're finished, save the edited WIN.INI file and restart *Windows*. From then on, you'll see the common font names listed in *Corel Draw*'s text dialog box rather than all those Canadian place-names. —*R. J.*

93

Can't Print? Reduce the Nodes!

Getting rid of unneeded nodes in *Corel Draw* speeds up printing and allows you to create more complex drawings than you otherwise could.

For example, say you create a composite path containing a pattern of circles and other ellipses. Each ellipse contains 4 nodes. If the composite path contains 25 ellipses, it holds 100 nodes. When you near 50 ellipses (200 nodes), you run into PostScript-imposed limits on the number of nodes in a single path, and your printer may refuse to print the drawing. Even if you're not printing to a PostScript printer, you may encounter long print times or other problems.

To reduce the number of nodes in an ellipse, create one ellipse of each size and shape you'll need. Convert each ellipse to a path by selecting *Arrange Convert to curves*. Choose the Shape tool, then select two nodes that are opposite one another on an ellipse (hold down **<Shift>** to select more than one node at a time). Double-click the second node you select, and when the Node Edit dialog box appears, choose *Delete*. Repeat for each ellipse you create. When you delete the nodes, the shape of the ellipse changes slightly—you may need to adjust the remaining nodes, particularly if you want a perfect circle. —*J. D. L.*

MICROGRAFX DESIGNER 3.0

94

Fonts and Plotters Don't Mix

If the text in a *Designer* drawing won't print on your plotter, check your fonts by selecting *Text Font*. Chances are you're using outline fonts, which plotters don't recognize. The solution is to convert the fonts to curves by clicking the pointer tool, selecting the text, and selecting *Text Convert to curves OK*. Now your plotter can do its stuff. (Note: Once you convert text to curves, you can manipulate it like any drawing—but the text can no longer be edited.) —*Micrografx Technical Support*

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Fix Faulty File Imports

Although *Designer* is pretty adroit at importing both vector (draw) and bit map (paint) files correctly, some files take a little work. If you import an *AutoCAD* DXF file and the image is reversed, check the Reverse Black/White box in the DXF input dialog box. If an imported TIFF image is reversed, you probably brought in a *compressed* TIFF file. Bring in the non-compressed version, and the image should be fine. —*Micrografx Technical Support*

PC PAINTBRUSH IV PLUS

96

Optimal Output for Scanned Images

Don't leave output of black-and-white TIFF images to defaults. For sharper printouts, do the following: Install *Paintbrush* for 16 or 256 colors. Load the scanned picture, select the image (or a portion), select *Edit Filter*, pick a filter (such as Blend) to enhance the image, and press **<Enter>**. When you're ready to print, select *File Print Set halftones Bayer OK*. —*Z-Soft Technical Support*

UTILITIES

NORTON UTILITIES

97

Copying What Norton Finds

The *Norton Utilities 5.0* File Find program can list all the files that match a certain criteria—but that's about it. What if you want to copy the files you find to, say, a floppy disk in drive A:?

The trick is turning the file list into a batch file. After you've set your search criteria, selected *Start*, and watched the list roll up in the list box, select *Create batch* from the List menu. Use the default 'filelist.bat' or type in a different file name, and keep the 'Save full path' and 'Directory title line' options on. Under 'Text to put before file names', enter **copy**, and under 'Text to put after file names', type **a:**. Press **<Enter>**, and you've created a batch file that will copy all the files that File Find found. To actually copy the files to drive A:, exit to DOS and type **filelist.bat**. —*Peter Norton Technical Support*

98

Quick Disk Navigation

The Explore disk menu's Edit/display item option in *Norton Utilities 4.5*'s NU program lets you examine almost any spot on a hard disk, whether there's a file there or not. But how do you get where you're going? In the Edit/display item module, pressing **<F8>** pops up a menu asking if you want to examine a drive, directory, file, cluster, sector, or absolute

(continues)

sector. Once you've made your choice, the desired item will be fetched posthaste. —*Peter Norton Technical Support*

PC TOOLS DELUXE 6.0

99

Getting It All on Tape

The *PC Tools Deluxe 6.0* PCBackup program is one of the few hard-disk-to-floppy backup programs that also backs up to QIC-40 and QIC-80 tape drives. If you have a tape drive, you can have secure backups without much effort. Here's one method that works great.

In PCBackup, select *Options Backup method Full / append to tape OK.* Next, select *Save setup,* type **weekly,** press <**Enter**>, and select *OK.* Repeat the process, selecting the Incremental backup method and naming the setup **daily.** Exit from PCBackup and create two batch files, WEEKLY.BAT and DAILY-.BAT, which log on to your PCTOOLS subdirectory; then issue the commands **pcbackup weekly** and **pcbackup daily.**

When you're finished working for the day, put a fresh cartridge in your tape drive and run WEEKLY.BAT. Keep that tape in the drive and, at the end of every other workday, run DAILY.BAT. Once a week, after you have run DAILY.BAT, put in a fresh tape and run WEEKLY again. If you use four tapes in rotation, you'll have a reliable archive of your last four weeks' work. —*Sarah Lillian Schenkler*

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Make PC Tools Windows Horizontal

When you view files in *PC Tools'* shell program, it typically shows them in a half-screen vertical window. You can zoom the window to full screen, but then you don't have access to the file or directory windows.

If you'd rather view files in a horizontal window, select *Options Setup configuration Viewer cfg.* This option toggles between 'vertical' and 'horizontal' defaults for View Window's window. In horizontal mode, the file view window stretches almost from one side of the screen to the other. It's not as tall, but you'll be able to read a full line of text. To make this your permanent configuration, select *Options Save configuration file.* —*Sally Yee*

MAGELLAN

101

The Magellan Garbage Disposal

When your hard disk starts getting crowded, the first thing to do is sift through all of your subdirectories for files that can be deleted. Likely candidates might be BAK files (BK! in *WordPerfect*), TMP files, and the like.

If you're a *Magellan* user, deleting these files automatically on a regular basis is a snap. Press <**F9**>**n** to create a new Explore group. Give the group any name that seems reasonable ("Garbage" comes to mind) and an Explore Path like ***:**.bk! *:**.bak *:**.tmp *:**temp.*.** When your disk gets a little too crowded, simply press <**F9**>, and select *Garbage.* Once the list of unwanted files is displayed, press <**Alt**>-<**F3**>**y**<**F3**><**Enter**>**y** to erase them all. —*Lincoln Spector*

Loy Andersen and Cory Jensen are coauthors of *Harvard Graphics: The Complete Reference* (Osborne/McGraw-Hill, Berkeley, California, 1990). Karl Anthony works for Ventura Software's technical support group. George Beinhorn is a freelance writer living in Nevada City, California. Jesse Berst is president and Scott Dunn managing editor of CompuThink Incorporated. Alfred Glossbrenner is the author of the *Complete Hard Disk Handbook* (Osborne/McGraw-Hill, 1990). William Goodrich is a freelance writer in New York. James Hopkins and Lisa Hopkins work for WordPerfect Corporation's technical support group. Charles W. Kyd is the author of *The Microsoft Excel Business Sourcebook* (Microsoft Press, Redmond, Washington, 1988). James D. Lorkin is a coauthor of the forthcoming *Inside Windows Guides—Corel Draw* (Microsoft Press). Bob Levine belongs to the NYPC user group. CPA Richard Mann is a coauthor of the forthcoming *Demystifying Windows 3.0* (Tab/Wincrest, Blue Ridge Summit, Pennsylvania). Frank Miyazaki is a member of the Borderline IBM-PC Users Group in Bellingham, Washington. Miles Musser works for Borland International's *Quattro Pro* technical support group. Ross Parlette belongs to the Silicon Valley Computer Society. Celeste Robinson is assistant manager of the product support department for Borland's *Paradox.* Sarah Lillian Schenkler is based in Boston, where she works as a software support specialist. Ken Smith is a support engineer for Hewlett-Packard. Jeff Walden is a freelance writer and software developer living in Morgan Hill, California. Computer specialist Thomas J. Wessel, Jr., works for the Center for Family Medicine in Greenville, South Carolina. Sally Yee is an electrical engineer specializing in the technical documentation of PC environments.

TJ Byers, George Campbell, Judy Heim, Richard Jantz, Alan Schwartz, Richard Scoville, Tom Swan, and John Walkenbach are contributing editors for *PC World.*

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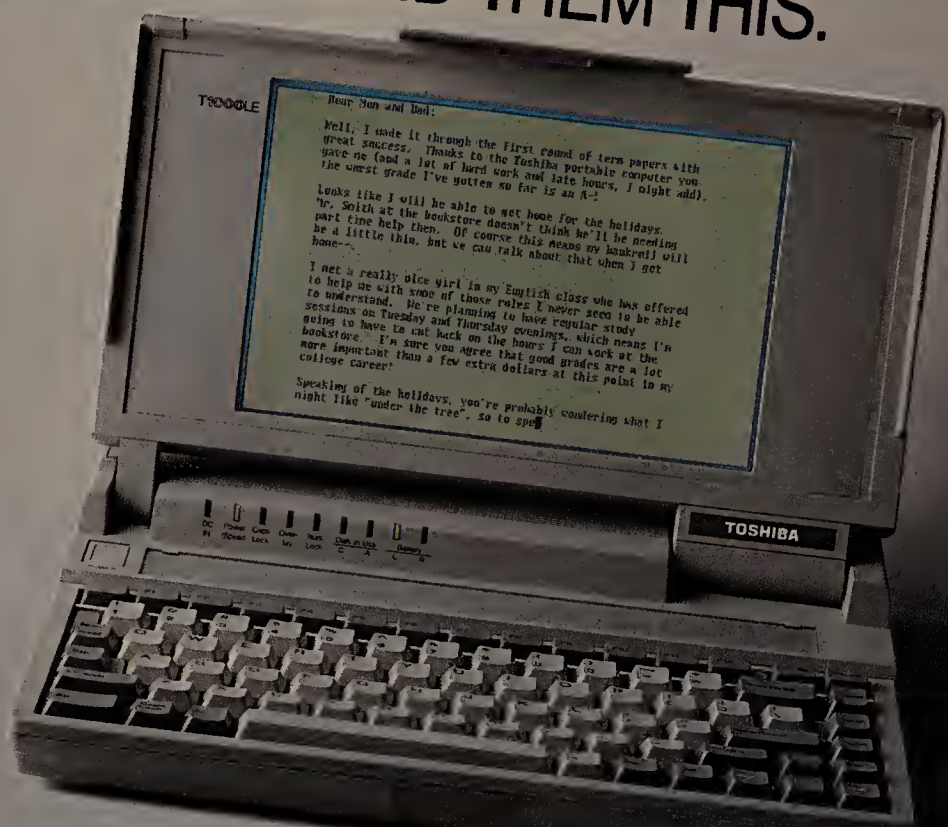

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User Group Tips

Helpful hints from members of the nation's user groups

Taking a Shorter Path

You can shorten your PATH statement and speed up some applications by beginning your PATH command's directory listing with the double-dot directory (PATH ..;), which represents the current directory's parent. (You'll also need to establish your data directories below their program directories and launch all your programs from their data directories.) When DOS looks at the PATH's list of directories, it will immediately find the current parent subdirectory, so you will no longer need to include those directories in your PATH.

Paul Curtis
Association of PC User Groups
Scotts Valley, California

Adding Sparkle to Laser Printouts

You can add some sparkle and a flash of color to your printed logos or text: Besides your laser printer, all you need is foil transfer paper and removable tape, both of which are available at your local craft shop. Cut the transfer paper a little larger than the area you want to enhance, and anchor it securely (shiny side up) with the tape—you don't want it to come off inside the printer. Make sure you place it only over the area you want to decorate. Then select the desired page, and place the prepared sheet in your feeder. Issue the print command, and when your page emerges, carefully remove the transfer paper. Voilà! Your printout will sparkle with a flash of your chosen color.

Elena Beck
UCLA PC Users Group

Easy Date-Entry Macro for 1-2-3

Anyone who has used *1-2-3* knows that entering a series of dates can be a pain. This macro eases the task of entering 1991 dates (you can substitute another date in the macro if you wish). In an out-of-the-way cell—G1, for instance—enter **'@date(91,{?},{?})~**. Cursor down one cell to G2, and enter **'/rfd4~**. Move the cursor to cell H1, and type **Enter date**; press **<Cursor Down>**, and enter **Format as date 4** in cell H2. The entries in H1 and H2 describe the macro. Now move the cursor to G1, and type **/rnc\d**. If your worksheet already has a macro assigned to <Alt>-D, substitute another key for 'd.' Press **<Enter>**. Highlight range G1..G2 by pressing **<Cursor Down>**, and press **<Enter>**. To use the macro, move your cursor to the desired cell, and press **<Alt>-D**. Type the number of the month and press **<Enter>**, then type the number of the day and press **<Enter>**. The cell will display the specified date—May 1, 1991, for example, will appear as 05/01/91. But if you look at the status line, you'll see an @DATE formula, which enables you to use any of your entered dates for calculations.

Roy Rosfeld
Capital PC User Group

Using Delete as a Marker for dBASE Records

Often I have to browse through a *dBASE* file, select a group of specific records, and assemble them into a new data base. Because these records don't always fall under a single criterion, I can't use the COPY FOR command. So I mark each record as deleted (don't worry, *dBASE* won't actually delete them until you issue a PACK command), copy all the deleted files to a new file, and then recall the deletes in the original data base (or PACK, but only if I want to remove the records from the original data base). Of course, for this method to work as intended, there must be no other deleted records in the original data base.

Steve Bass
Pasadena IBM Users Group

CoEdit Advantages for Paradox Data Entry

Paradox's Modify DataEntry mode is, as the name implies, useful only for adding new data. But with Modify Edit and Modify CoEdit modes, you have the option of entering, changing, or deleting data. CoEdit mode was designed for multiuser editing on networks, and as a result, many users don't realize that it may be used by a single user on a nonnetworked system. Using CoEdit has some real advantages. For one, unlike Edit mode, CoEdit posts changes immediately, without making you press <F2>. Also, there's a security advantage when you work with keyed tables. In Edit mode, if you enter a new record with duplicated key fields, *Paradox* will replace the old record without warning. In CoEdit mode, however, *Paradox* alerts you that a record with duplicate keys exists. You then have the choice of keeping either the old record or the new one; or you can change the keys of the new record and try posting it again. If you wish to retain Undo or to use *Paradox*'s ValCheck feature, however, you must work in Edit mode.

Brian Bushay
Twin Cities PC User Group

Are you a user group member with a tip to share? Send it to User Group Tips, PC World, *501 Second St. #600, San Francisco, CA 94107; CompuServe 74055,412; MCI Mail PC World Editorial; or 415/442-1891 (fax). We pay $50 and throw in a* PC World *T-shirt for each tip we use—and you get to see your name in* PC World.

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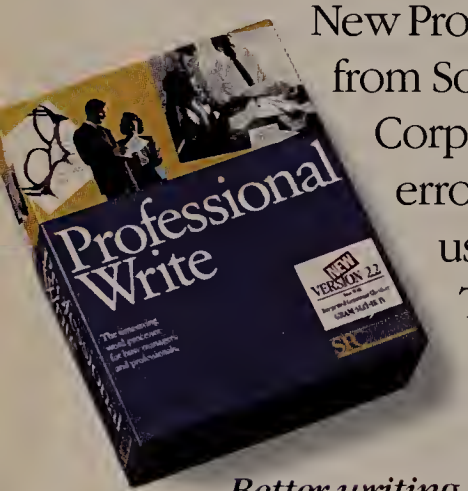

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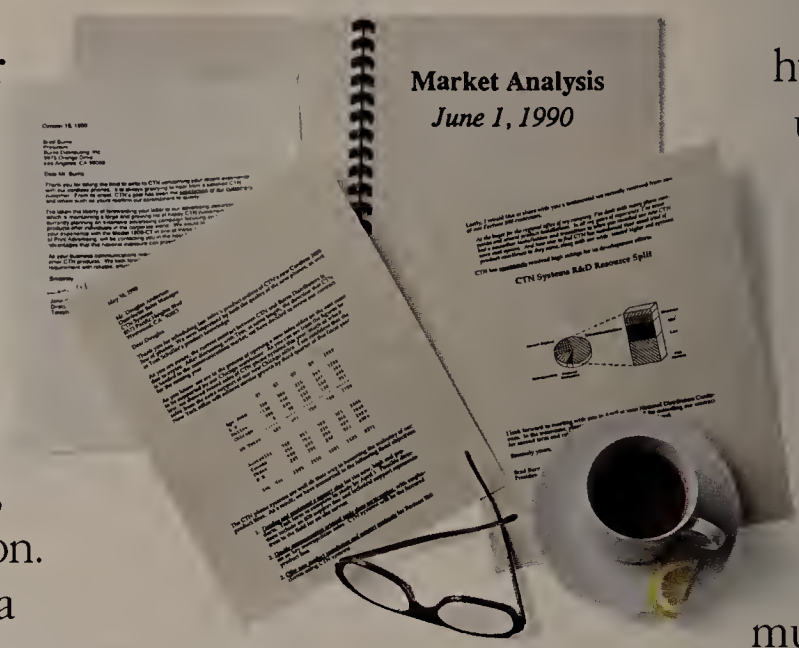

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1990

PC WORLD ANNUAL INDEX

This index covers all products, reviews, features, and how to's in the 12 issues of *PC World* published in 1990. Most products can be located under subject headings that describe their function. Boldface page numbers refer to formal product reviews. This index is available on disk from Bayside Indexing Service. For more information circle reader service no. 662.

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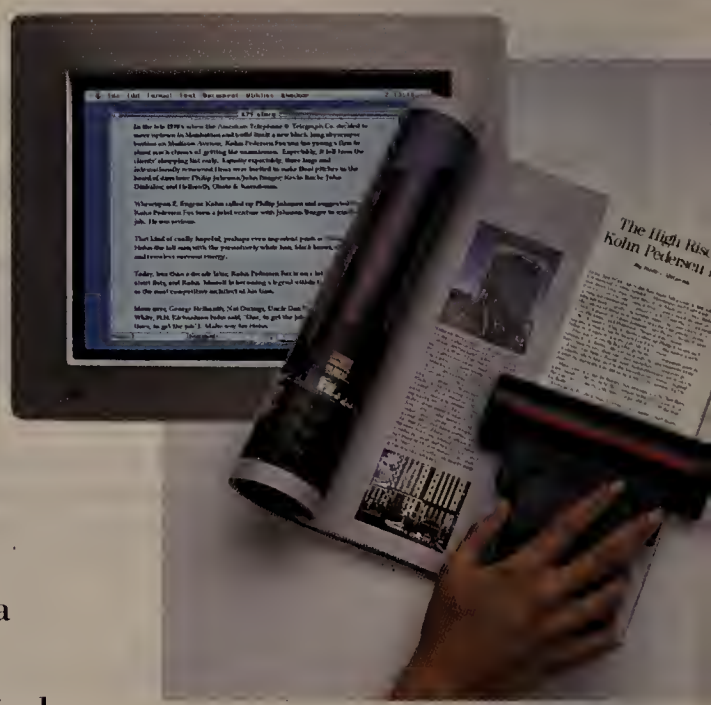

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Forecast into the twenty-first century with a 1-2-3 date macro, make batch file arguments case insensitive, eliminate accidental accents when using HP LaserJet printers, find files quickly and easily, banish WordPerfect underlines from your table of contents, and give your demos the boot.

Edited by Tom Swan

2001: A Worksheet Oddity

Lotus's *1-2-3* recognizes dates in the next century, but only if you type three-digit year values like **101** for the year 2001 or **110** for 2010, or use the full four-digit years. When you're entering a lot of dates, one- or two-digit years like **2** or **12** are much easier to type, but these translate to 1902 and 1912—not years for which you're likely to do much financial planning.

For worksheets that forecast into the next century, I wrote a macro [see **FIGURE 1**] that lets me enter twenty-first-century dates as two-digit years. The macro works by adding @date(99,12,31) to @date(year,month,day)—where 'year' is the label of a cell that holds a value from 0 to 89—effectively adding a century to the year typed. Because such dates display in Long Int'l format (MM/DD/YYYY), I increase the column width to at least 11 for the macro's target cells.

David H. Noble
Roanoke, Virginia

Editor's note: The macro works equally well in 1-2-3 *and* Quattro Pro. *To create it, type the* **FIGURE 1** *macro in six out-of-the-way cells, pressing ' before the last line. Use* /Range Name Create *to name the first cell* **\d** *and to name three other out-of-the-way cells* **Month**, **Day**, *and* **Year**.

To run the macro, press **<Alt>-D**, *then answer the prompts for the month, day, and year values. The current column must be at least 11 characters wide. To see how the macro converts years, run it several times with such year values as 2, 45, and 91.*

I modified Mr. Noble's original macro to recognize values from 90 to 99 as the years 1990 to 1999. Values from 0 to 89 correspond to the years 2000 to 2089. To change this, adjust the expressions at rows 4 and 5. For example, if you want 50 to 99 to represent the years 1950 to 1999 and 0 to 49 to mean the years 2000 to 2049, change '90' to **50** *and '89' to* **49**.

Insensitive Batch File Arguments

It's frustrating to deal with uppercase and lowercase arguments passed to batch files—'PROG file', 'PROG FILE', or even 'ProG FiLe', for example. Testing for all combinations of case (making the batch program case insensitive) usually requires a series of messy IF statements or complex FOR loops.

But I've hit upon an approach that lets batch files convert arguments to uppercase before using them. The technique relies on a side effect of the DOS PATH command, which, unlike other environment variables, automatically converts its contents to uppercase. By preserving the current PATH, assign-

(continues)

```
      A        B        C        D        E        F
1   \d       {getnumber "Enter Month: ",month}
2            {getnumber "Enter Day: ",day}
3            {getnumber "Enter Year: ",year}
4            {if year<90}@date(year,month,day)+@date(99,12,31)~
5            {if year>89}@date(year,month,day)~
6            /rfd4~/rv~~
7
8   Year          1          11/25/2001
9   Month        11
10  Day          25
```

FIGURE 1: This 1-2-3 macro lets you enter two-digit values for years in the current and twenty-first centuries.

ANTHONY RUSSO

ing argument strings, and then restoring the PATH, this trick makes a handy case converter in any batch file.

A sample batch file, RUN.BAT [see **LISTING 1**], converts arguments to uppercase, then runs a program. First, it checks that you've entered at least two items: a program to run, and any arguments for that program. After this, it saves PATH in OLDPATH and sets RUN to the target program's name. A loop then uses SHIFT to build a string in PATH out of each argument. This converts the arguments to uppercase. After the loop, PATH is set to OLDPATH, which is erased to conserve environment space. The %RUN% command then runs the program with the converted arguments.

William T. McGowan III
Columbia, South Carolina

```
echo off
if "%2"==="" goto HELP
set OLDPATH=%PATH%
set RUN=%1
:NEXT
shift
PATH=%1
set RUN=%RUN% %PATH%
if not "%2"==="" goto NEXT
set PATH=%OLDPATH%
set OLDPATH=
%RUN%
:HELP
echo Enter run x arg1 arg2...
echo where x is a program and
echo args are option arguments
```

LISTING 1: RUN.BAT shows how to use PATH as an argument case converter in batch files.

Editor's note: For a sample of how you can use this clever idea, run TESTPROG.BAT (see **LISTING 2***). The batch file simulates a program that recognizes two fictitious commands, OPEN and CLOSE.*

When you enter **testprog OPEN** *or* **testprog CLOSE**, *TESTPROG confirms that it received those commands. If you enter those same commands in lowercase, the program displays an error message. But when you use Mr. McGowan's batch file to run TESTPROG, you can type arguments using any combination of lowercase and uppercase letters.*

```
echo off
if "%1"==="" goto ERROR
if %1==OPEN goto OPEN
if %1==CLOSE goto CLOSE
goto ERROR
:OPEN
echo You selected OPEN
goto END
:CLOSE
echo You selected CLOSE
goto END
:ERROR
echo Bad or missing command
:END
```

LISTING 2: Running TESTPROG.BAT from RUN.BAT (LISTING 1) lets batch programs use arguments in uppercase and lowercase.

If you get an 'Out of environment space' message, add the line **shell command.com /e:384 /p** *to the end of your CONFIG.SYS file. When you reboot, DOS will set aside 384 bytes (instead of the default 256) for environment variables. If this is still not enough, try 512 or more. The '/p' makes the change to COMMAND.COM permanent.*

Accidental Accents

The standard HP LaserJet character set doesn't include extended ASCII characters. When printing screen dumps or anything from a program without a good LaserJet driver, you end up with a bunch of foreign-accented characters where your lines and boxes should be.

To prevent these accidental accents from appearing when you print, I created two data files, HPLJFONT.STD and HPLJFONT.EXT, that contain the codes for selecting standard and extended character sets. At the DOS prompt, type **copy hpljfont.ext prn** to get the extended characters; copy HPLJFONT.STD to the printer for the LaserJet's defaults.

J. L. Richards
Richmond, British Columbia, Canada

Editor's note: To create HPLJFONT.STD and HPLJFONT.EXT, run MAKEHPLJ.BAS (see **LISTING 3***) using BASICA or GW BASIC. Then copy the two files to any directory, for example, c:\util. Using these files will be simpler if you create two one-line batch files, HPEXT.BAT and HPSTD.BAT, and put them in a directory listed in your PATH command. The contents of these batches should be* **copy c:\util\hpljfont.ext prn:** *and* **copy c:\util\hpljfont.std prn:**, *respectively.*

```
10 GOSUB 20:END
20 F$="hpljfont.ext":GOSUB 40
30 F$="hpljfont.std"
40 OPEN F$ AS #1 LEN=1
50 FIELD #1,1 AS D$
60 READ C:IF C<0 THEN 90
70 LSET D$=CHR$(C):PUT #1
80 GOTO 50
90 CLOSE:RETURN
100 DATA 27,40,49,48,85,-1
110 DATA 27,40,56,85,-1
```

LISTING 3: Load MAKEHPLJ.BAS into BASIC and run it to create HP LaserJet font switchers HPLJFONT.STD and HPLJFONT.EXT.

*For a more complete solution, see HPPR.BAT (***LISTING 4***), which turns on the extended characters, prints up to nine ASCII files, then returns to the printer's defaults. When creating HPPR.BAT, replace the path 'c:\util\' on lines 3 and 5 with the actual path to the directory holding HPLJFONT.STD (continues)*

```
echo off
if "%1"==="" goto HELP
copy c:\util\hpljfont.ext prn:
print %1,%2,%3,%4,%5,%6,%7,%8,%9
copy c:\util\hpljfont.std prn:
goto END
:HELP
echo Enter prhp file1 file2...
echo to print files using
echo extended ASCII characters
:END
```

LISTING 4: HPPR.BAT prints extended ASCII characters on the HP LaserJet using files created by MAKEHPLJ.BAS (LISTING 3).

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VGA GraphicsMaster (CJ4681)	14 inch	Color	640x480 (VGA)	
SyncMaster (CT4581)	14 inch	Color	800x600 (Super-VGA)	Multi Scan
SyncMaster2 (CVB4581)	14 inch	Color	1024x768 (Enhanced-VGA)	Interlaced
SyncMaster3 (CVB4587)	14 inch	Color	1024x768 (Enhanced-VGA)	Interlaced
SyncMaster4 (CSA7571)	17 inch	Color	1024x768 (Enhanced-VGA)	Non-interlaced, Flat Screen, Multi Scan
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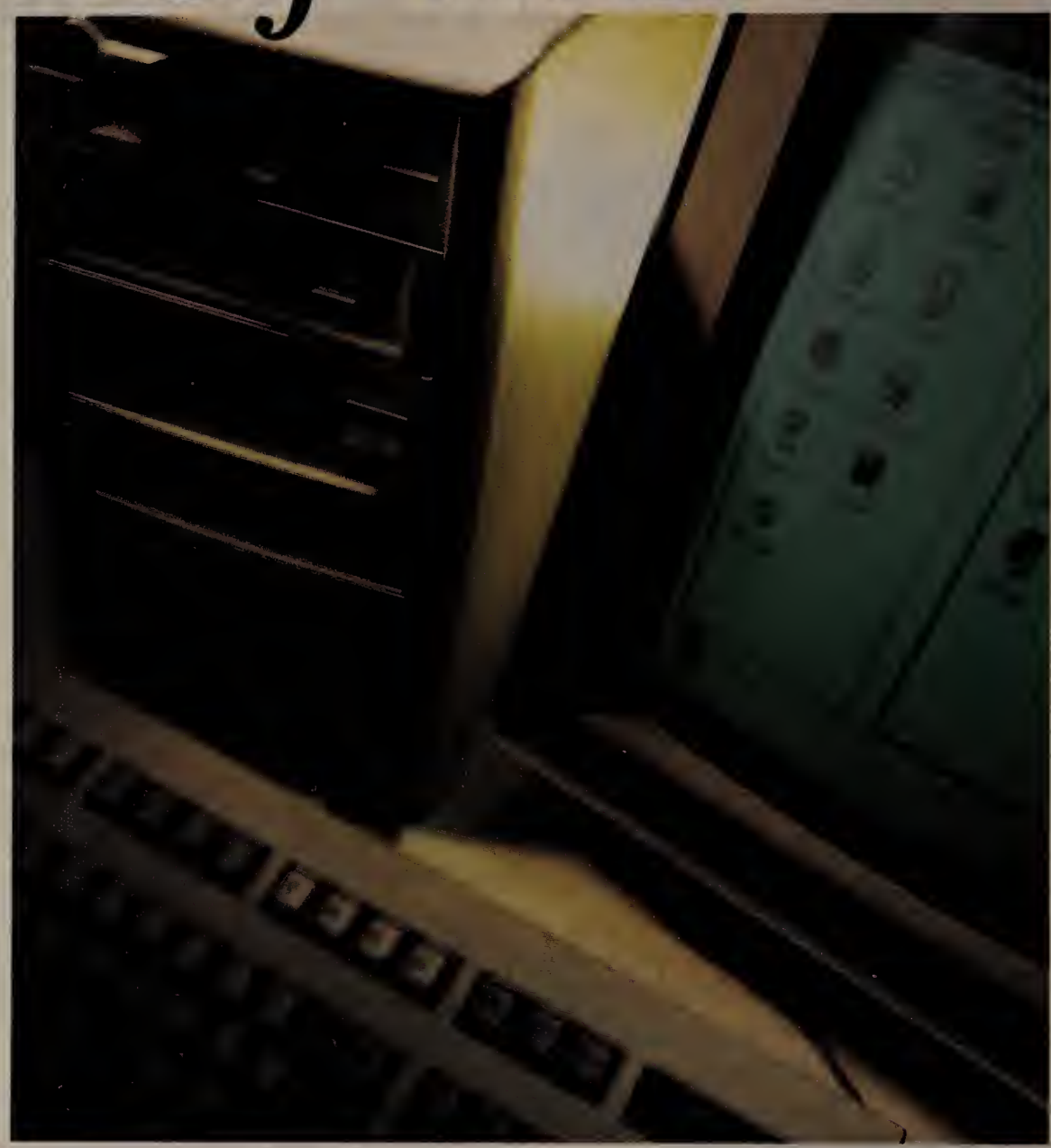

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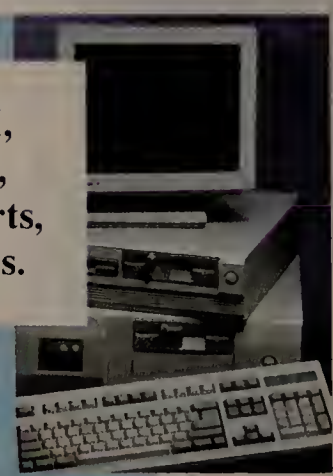

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and HPLJFONT.EXT. Also, make sure the DOS PRINT.COM utility is stored in a directory listed in the currently active PATH command. Then type **hppr** file1 file2...filen *to print your file or files.*

Finders Keepers

For years I located files on my hard disk by piping the output from CHKDSK /V through the FIND filter. Recently I stumbled across an alternate method that uses the ATTRIB command from DOS 3.3 or later versions. To find all files ending with DOC, for example, I just enter **attrib c:*.doc /s.**

Gregory W. Dillon
San Francisco, California

Editor's note: This neat trick is definitely a keeper; it's much more versatile than using CHKDSK /V with the FIND filter. ATTRIB's /S option searches all nested paths for files that match the search argument. For example, enter **attrib c:\wp*.txt /s** *to locate files ending with TXT in C:\WP plus all subdirectories nested inside.*

Contents to Table 1, Hold the Underlines

Whenever I attempted to create a table of contents from a *WordPerfect 5.1* document, the Generate command would always recreate my chapter titles' underlining, even when I didn't want it to. By examining hidden codes using the Reveal Codes command (<Alt>-<F3>), I discovered a simple trick that lets me use special formatting without having it appear in the table of contents entries.

The method takes advantage of the order in which *WordPerfect* inserts codes for titles and table of contents entries. Depending on the order in which you mark entries and underline titles, *WordPerfect* may reverse these symbols, causing unwanted underlines to print in the table of contents. By always having the table of contents (ToC) codes *inside* the underline codes, you

(continues)

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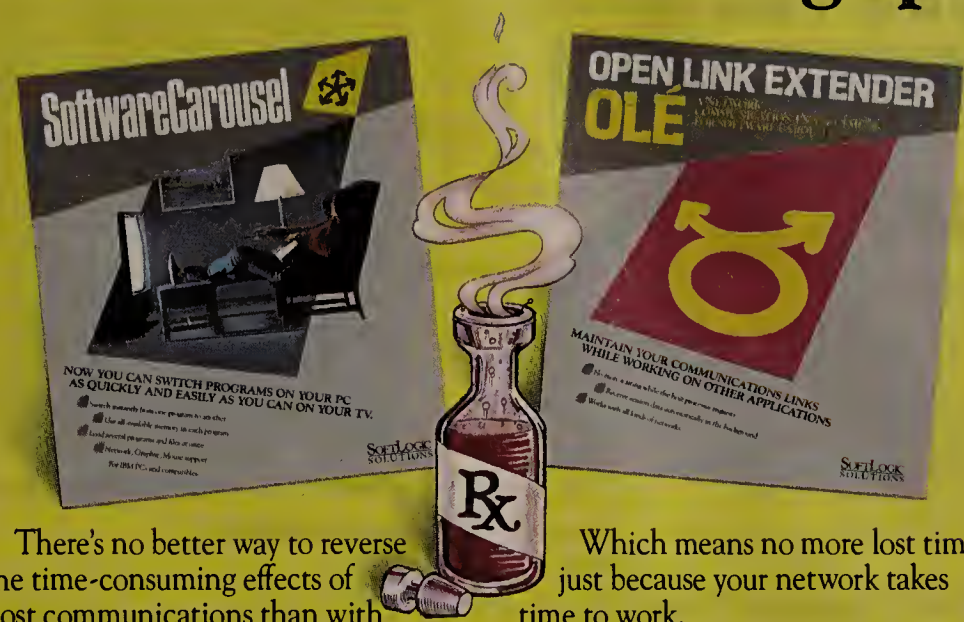

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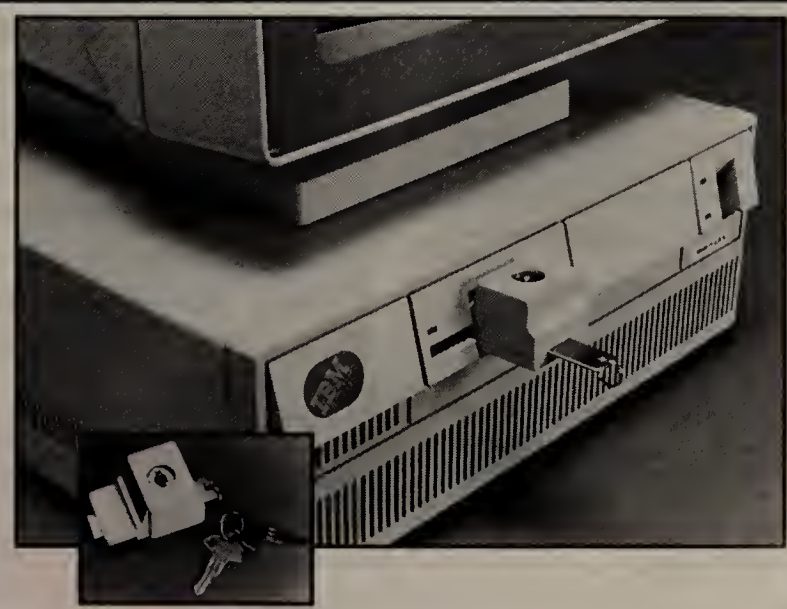

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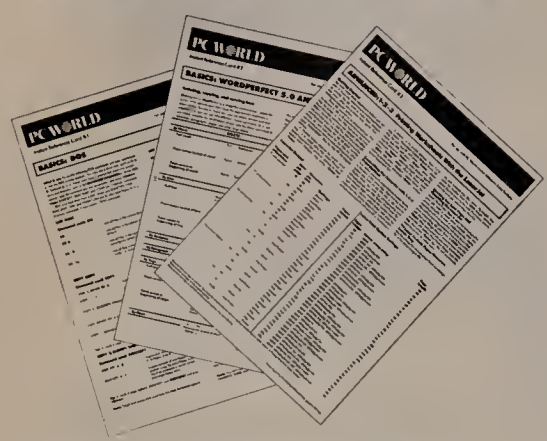

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```
<Ctrl>-<F10>          Start macro recorder
<Alt>-T               Select macro key
Header1<Enter>        Give macro a name
<Alt>-<F4>            Turn on block mode
<End>                 Mark to end of paragraph
<Alt>-<F5>            Select Mark Text command
11<Enter>             Specify TOC, Level One
<Alt>-<F4>            Turn on block mode again
<Ctrl>-<Home>         Enter two "gotos" to mark
<Ctrl>-<Home>          previous field
<F8>                  Underline marked block
<Ctrl>-<F10>          Turn off macro recorder
```

FIGURE 2: Use this WordPerfect macro to prepare underlined headers that are not underlined in a table of contents.

ensure that *WordPerfect* prints underlined titles in the document but not in the table. The macro [in **FIGURE 2**] automatically marks my titles to produce clean table of contents entries.

Raymond J. Dale
Elkhart, Indiana

Editor's note: Start WordPerfect 5.1 *and enter a sample chapter title. Move the cursor to the beginning of the title and enter the macro keystrokes, pressing <Enter> only where shown. When finished, load a document and position the cursor on each Level One title. Press* **<Alt>-T** *to underline the title and mark it for the table of contents.*

To generate the table, move the cursor to the beginning of the document. Make certain the cursor is on a blank line, not on a header. Then press **<Ctrl>-<Enter><Cursor Up><Alt>-<F5>dc<Enter>** *to prepare a page for the table of contents, then* **<Alt>-<F5>ggy** *to make the table. In a few seconds, you'll see all your marked titles in the table, sans underlines.*

Tom Swan is a contributing editor for PC World *and the author of* Mastering Turbo Pascal 5.5 *and* Mastering Turbo Debugger *(Howard W. Sams and Co., Carmel, Indiana, 1989 and 1990).*

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POWER TIP NO. 157

Determining Your ROM BIOS Date

If you are experiencing problems with a hardware upgrade, you can use the DEBUG utility (which came on one of your DOS disks) to check the date of your computer's ROM BIOS. Run DEBUG, and at the hyphen prompt type **dffff:5 l8** and press **<Enter>**. Your system's ROM BIOS date will appear on the right side of your screen. Press **q<Enter>** to get back to the DOS prompt.

Troy Wagstaff
Provo, Utah

PC WORLD

Instant Reference Card #8

For use with PC World Instant Reference Card Portfolio

BASICS: VENTURA PUBLISHER 2.0 AND 3.0

What to do: This card covers the GEM version of *Ventura Publisher*, versions 2.0 and 3.0. (The Professional Extension module is not covered.) The sections below describe keyboard shortcuts as well as basic operations in *Ventura's* four major modes. To enter a new mode, click the appropriate mode icon in the upper-left corner of the screen. **Note:** To select a feature, move the cursor to a menu, menu option, or on-screen element and click the left mouse button.

KEYBOARD SHORTCUTS

What to do: Although *Ventura* is normally used with a mouse, these keyboard shortcuts can be faster.

Frame mode	<Ctrl>-U
Paragraph mode	<Ctrl>-I
Text mode	<Ctrl>-O
Graphics mode	<Ctrl>-P
Normal view	<Ctrl>-N
Reduced view	<Ctrl>-R
Enlarged view	<Ctrl>-E
Save file	<Ctrl>-S

FRAME MODE

What to do: Frames contain the text and graphics that make up a document. They lie on top of the master page frame, which dictates page size, margins, columns, and so on for an entire document. Before you take any of the following actions, be sure to select the Frame icon or press **<Ctrl>-U**.

Action	Steps
Select frame	Place pointer in frame, click
Add new frame	*Add new frame*, place mouse pointer on page, hold left button, draw frame
Move frame	Place pointer in frame, hold left button and drag
Size frame	Select frame, place pointer on handle, hold left button and drag to size
Delete frame	Select frame, <Del>
Load text/pictures into frame	Select frame, *File Load/text picture*, pick file type and format, *OK*, type file's drive and directory, select file, *OK*

Tip: You can set frame size exactly by selecting *Frame Sizing & scaling* and entering numbers at the Frame Width and Frame Height items. Click *Vert. padding*: to change measurement units.

PARAGRAPH MODE

What to do: Use this mode when typesetting text. Click the Paragraph icon, and style tags appear in the sidebar's Assignment list. Tags specify typeface, point size, style, spacing, and other attributes you can apply to a paragraph. A style sheet is a collection of these tags along with layout settings for the master page. To create a custom style sheet, modify one of the style sheets supplied with *Ventura* and save it under a different name.

Action	Steps
Select text	Place pointer in paragraph, click
Apply tag to text	Select paragraph, select tag in Assignment list

PARAGRAPH MODE (continued)

Tag multiple paragraphs	Select first paragraph, hold <Shift> and select additional paragraphs, select tag
Add new tag	Select paragraph, *Add new tag*, type tag name on 'Tag Name to Add' line (to copy values from another tag, type tag name on 'Tag Name to Copy' line)
Modify a tag	Select tag, *Paragraph*, make changes in Font, Alignment, and other menus
Remove or rename tags	*Paragraph Update tag list*, select tag, *Remove selected tag* or *Rename tag*, *OK* (if renaming, type new tag name)

Note: Any modification made to a tag is instantly applied globally to text set with this tag.

Tip: To make an exception to tag formatting in a document, you can create a new tag. However, if you're changing only typeface, size, style, or color, you don't need to change tags. Instead, switch to Text mode, select the text, click *Set font*, and make the changes.

Fold Here

TEXT MODE

What to do: *Ventura's* text mode is for last-minute changes rather than full-scale editing. Before taking any of the following actions, make sure you are in Text Editing mode.

Action	Steps
Place cursor	Place pointer in text, click
Select text	Place cursor at beginning of text, hold left button and drag (or place cursor at beginning of text, hold down <Shift>, point at destination, click)
Cut text	Select text, <Del>
Copy text	Select text, <Shift>-<Del>
Paste text	Place cursor, <Ins>
Enhance text	Select text, select enhancement from Assignment list

GRAPHICS MODE

What to do: With *Ventura's* basic polygon, ellipse, and line drawing tools, you can create simple graphics. Select the Graphics Drawing icon, and the tools are displayed directly below.

Action	Steps
Draw graphic	Select frame to attach graphics Select drawing tool, place pointer on page, hold left button, draw graphic
Move graphic	Place pointer inside graphic, hold left button and drag
Size graphic	Select graphic, place pointer on handle, hold left button and drag
Change line attributes	Select graphic, *Graphic Line attributes*, choose line thickness, color, end style, and so on
Change fill attributes	Select graphic, *Graphic Fill attributes*, pick fill color, pattern, and transparency

PC WORLD

Instant Reference Card #8

For use with PC World Instant Reference Card Portfolio

ADVANCED: VENTURA PUBLISHER 2.0 AND 3.0

What to do: The three sections on this card outline the steps for defining the layout of a chapter's master page, paginating a document, and assembling multiple chapters into a publication.

ADVANCED FORMATTING

Note: To define the layout of your master page, you'll need to set up a style sheet. If you plan to make custom modifications or create a new document style, always create a new style sheet from scratch or save the existing style sheet under a new name and make changes to the copy. *Ventura* automatically records changes to a style sheet whenever you save a document.

Action	Steps
Create new style sheet from scratch	*File Load text/picture*, select text format, *OK*, select text file, *OK*, *File Load diff. style*, scroll down the list and select *DEFAULT.STY OK File Save as new style OK*, type name for new style sheet, *OK File Save*
Define master page	*Chapter Page size & layout*, modify settings, *OK*
Define margins and columns	Select Frame mode, select master page, *Frame Margins & columns*, type desired number of columns, column width, margins, and so on, *OK*

ADVANCED FORMATTING (continued)

Set custom page size	Select Frame mode, select master page, *Frame Sizing & scaling*, type custom page width at Frame Width option, type custom page height at Frame Height option, *OK*

Tip: Custom pages let you publish odd-sized documents, such as business cards, that print on a standard sheet of paper. By default, *Ventura* places a custom page in the upper-left corner of the sheet of paper. To move the custom page away from the left edge and top of the paper, change the values following the Upper Left X and Upper Left Y options.

Note: Use the following steps to define attributes of individual paragraph tags when designing a new style sheet from scratch or modifying an existing one.

Action	Steps
Change font attribute	Select Paragraph mode, select paragraph to be formatted, *Paragraph Font*, select font, size, style, and so on, *OK*
Change alignment	Select Paragraph mode, select paragraph, *Paragraph Alignment*, change vertical and/or horizontal alignment, *OK*
Change spacing between paragraphs	Select Paragraph mode, select paragraph, *Paragraph Spacing*, enter new numbers at Above and Below, *OK*
Change spacing between lines (leading)	Select Paragraph mode, select paragraph, *Paragraph Spacing*, enter new number at Inter-Line, *OK*
Change paragraph margins	Select Paragraph mode, select paragraph, *Paragraph Spacing*, enter new numbers at In From Left or In From Right, *OK*

PAGINATION

Note: To place page numbers in the document, use the Headers and Footers option described below.

Action	Steps
Create headers and footers	*Chapter Headers & footers*, turn on Usage, select header or footer type under Define, type header or footer text in appropriate Left, Right, or Center line, *OK*
Add page numbers to headers and/or footers	In the Headers and Footers dialog box, place cursor in appropriate Left, Right, or Center line, move to Inserts and click an Page #, surround with appropriate punctuation and text, *OK*

PUBLICATION FILES

Note: A chapter keeps track of all the related elements of a document, such as text, graphics, and the style sheet. In long documents with multiple tables, figures, and so on, you may want to join multiple chapter files to form a publication file for easier control over pagination. Here's how to set up and paginate a publication file:

Fold Here

PUBLICATION FILES (continued)

Action	Steps
Assemble chapters into a publication file	*Options Multi-chapter*, save or abandon changes when prompted, *Add Chapter*, pick desired chapter, *OK*, repeat last two steps for each additional chapter, *Save/as*, type name of publication file, *Done*

Tip: To order chapters in a publication list, select the chapter name, hold down the left mouse button, and drag the chapter into the desired position.

Note: By default, *Ventura* numbers pages separately within each chapter (for example, 3-1, 3-2, 3-3). However, you can continuously paginate across chapters so that page numbers continue automatically from the end of one chapter to the beginning of the next. To choose this option, you must first make continuous pagination settings for each chapter in the Chapter/Update Counters dialog box. Then renumber the complete publication in the Multi-Chapter operations dialog box.

Action	Steps
Paginate across a publication	Load first chapter in publication; *Chapter Update counters Initial page*, select *Restart Number* at Update Method, type **1** at Restart Number, *OK*; load each additional chapter in turn, following the same steps, but set Update Method to *Previous Number + 1*; *Options Multi-chapter*, select publication file, *Renumber OK Done*

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DEVELOPER'S TOOLBOX

Booting Without DOS

Tom Swan

If you've ever sold or given away a program on disk, you've probably run into somebody who tried to boot your distribution floppy. Beginners are especially likely to make this mistake, and one of the most common questions that software support departments have to handle is, "Why can't I boot your company's disks?"

Of course, most developers know the answer. They can't distribute bootable floppies without paying for an expensive MS-DOS run-time license—assuming they can convince Microsoft to sell them one in the first place. Understandably, Bill Gates is not eager to have millions of copies of DOS floating around on floppies, losing control and revenue as Apple once did with Apple II DOS.

So if you need to create a bootable floppy, the first step is to forget about using MS-DOS. The second is to send off for a copy of General Software's *Booter Toolkit.* This brilliantly conceived *Microsoft C 5.1* and *MASM 5.0* function library gives you all the tools you need to create floppies that boot *without* either DOS system files or COMMAND.COM.

Understanding how this is possible requires a working knowledge of a PC's boot process. When you switch on your system or when you reboot, the BIOS attempts to load the "boot record," a small program stored at sector 0, track 0, and head 0. It tries to do this first from the A: floppy drive and then, if that fails, from a hard drive. If the BIOS can successfully load the boot record, it begins a sequence of events that transfers an operating system into RAM, initializes various system variables, and brings the computer to life.

By replacing the boot record with custom programming, you can take over these actions and convert a PC from a DOS-based system to a black box that does whatever you want. It's not difficult to write a boot program—anyone with a little *MASM* experience and a good PC reference can do it. But it's the after-booting tasks that make programming minus DOS so difficult. Without DOS, you lose all the usual keyboard, display, and file-handling routines that most DOS applications require. Also, any of your carefully crafted programming libraries that call DOS functions—and that's probably most of them—are useless.

This is where the *Booter Toolkit* comes in. Included with the software are functions for reading and writing files stored on floppies (but not on hard drives or in subdirectories). There's a full set of text window functions that let you design good-looking screens. The tool kit also supports concurrent BIOS calls and OS/2-style multitasking threads. These and other features make *Booter Toolkit* just the ticket for creating self-starting, bootable demo disks, educational "read-only" information software, and even games that don't need DOS.

To get you started, the product comes with a well-organized manual that includes detailed information about the boot process. You also receive sample listings that can serve as templates for your own programs.

I'm planning to use the *Booter Toolkit* to create advertising disks that I'll give away for free and to add short programs to my current nonbooting disks. These will display a brief message telling beginners what to do if they accidentally try to boot from the floppy.

The *Booter Toolkit* is not a replacement for DOS. But if you need to create self-starting, bootable floppies, this tool kit will get you off and booting in a hurry.

Let's talk it over. My MCI Mail handle is TSWAN; my CompuServe ID is 73627,3241.

WHERE TO BUY

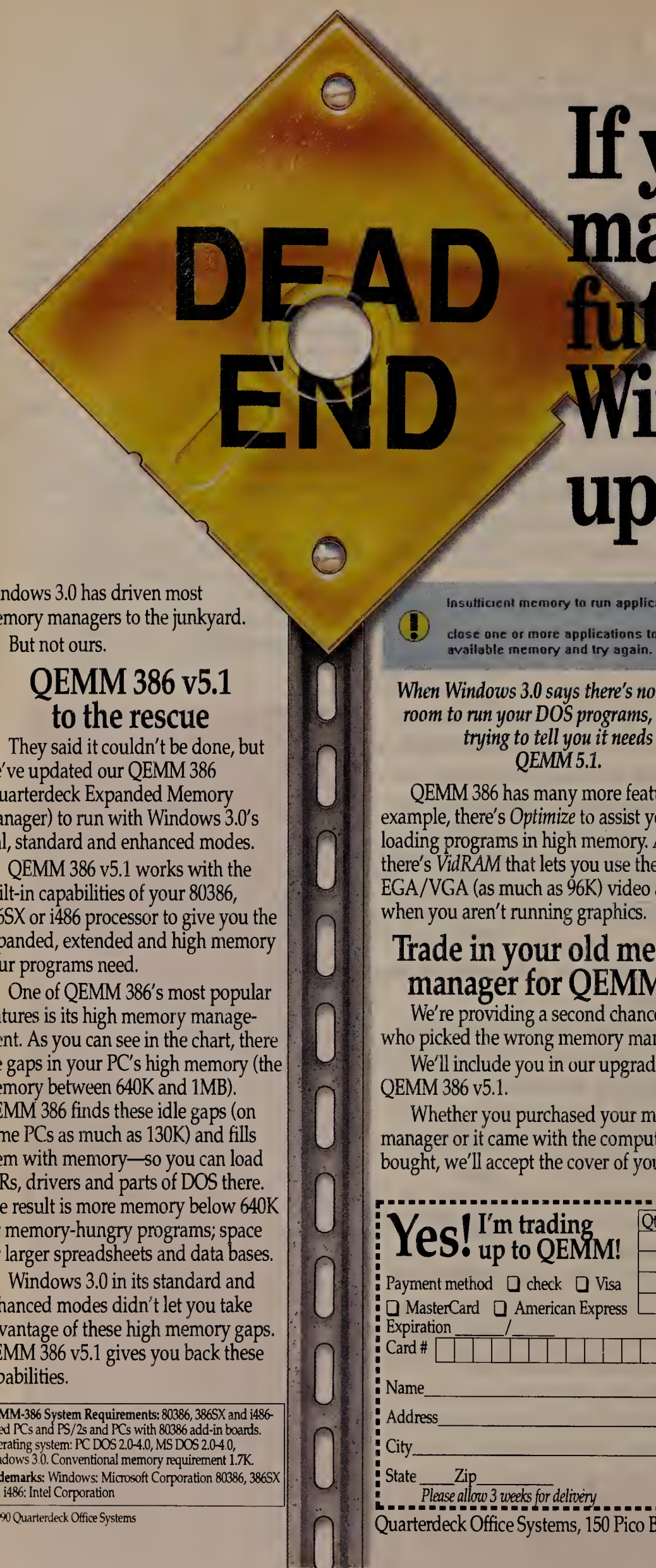
Booter Toolkit
General Software
P.O. Box 2571
Redmond, WA 98073
206/391-4285, 206/746-4655 (fax)
LIST PRICE: $99
REQUIREMENTS: 256K at run time, 512K for development, DOS 2.1 or later version, Microsoft C 5.1 or later version, MASM 5.0 or later version
TECHNICAL SUPPORT: unlimited free support for registered users, toll number, M–F 9–5
OTHER SUPPORT: none
Reader service no. 601

POWER TIP NO. 158

Browsing Windows 3.0 Directories With File Search

Windows 3.0's File Manager has a handy Search command that accepts DOS wild-card file specs. For example, to hunt for all *Excel* files whose names begin with *B*, open File Manager, select *File Search*, and type **B*.XL?**. Make sure Search Entire Disk has an *X* in its check box; if this option is turned off, File Manager will look only in the current directory. Select OK to begin searching. After scanning the drive, File Manager displays any matching files and their paths in a Search Results window. You can then copy, delete, or perform other operations on selected files.

John Walkenbach
Del Mar, California



If your memory manager has no future under Windows, trade up to QEMM.

Windows 3.0 has driven most memory managers to the junkyard.

But not ours.

QEMM 386 v5.1 to the rescue

They said it couldn't be done, but we've updated our QEMM 386 (Quarterdeck Expanded Memory Manager) to run with Windows 3.0's real, standard and enhanced modes.

QEMM 386 v5.1 works with the built-in capabilities of your 80386, 386SX or i486 processor to give you the expanded, extended and high memory your programs need.

One of QEMM 386's most popular features is its high memory management. As you can see in the chart, there are gaps in your PC's high memory (the memory between 640K and 1MB). QEMM 386 finds these idle gaps (on some PCs as much as 130K) and fills them with memory—so you can load TSRs, drivers and parts of DOS there. The result is more memory below 640K for memory-hungry programs; space for larger spreadsheets and data bases.

Windows 3.0 in its standard and enhanced modes didn't let you take advantage of these high memory gaps. QEMM 386 v5.1 gives you back these capabilities.

QEMM-386 System Requirements: 80386, 386SX and i486-based PCs and PS/2s and PCs with 80386 add-in boards. Operating system: PC DOS 2.0-4.0, MS DOS 2.0-4.0, Windows 3.0. Conventional memory requirement 1.7K.

Trademarks: Windows: Microsoft Corporation 80386, 386SX and i486: Intel Corporation

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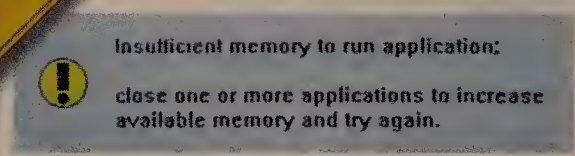

When Windows 3.0 says there's not enough room to run your DOS programs, it's just trying to tell you it needs QEMM 5.1.

QEMM 386 has many more features. For example, there's *Optimize* to assist you in loading programs in high memory. And there's *VidRAM* that lets you use the EGA/VGA (as much as 96K) video area when you aren't running graphics.

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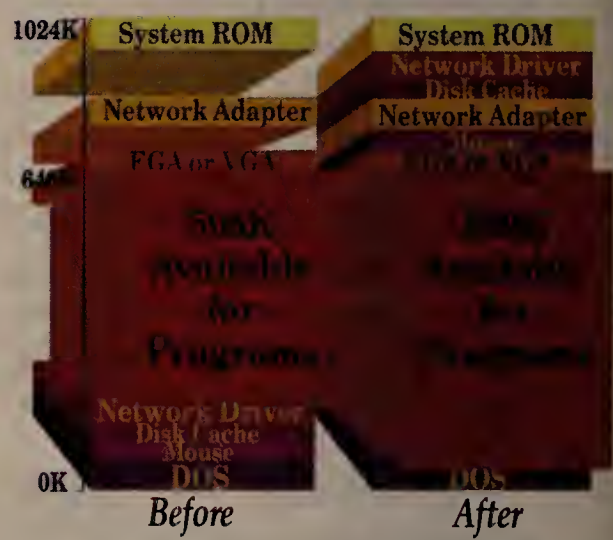

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	Upgrade other to v5.1*** (with proof of ownership)			$45.00	
	Shipping & handling $5 in USA/varies outside USA				
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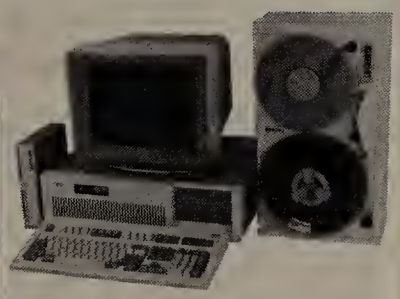

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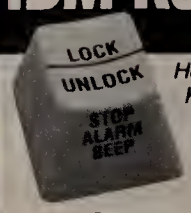

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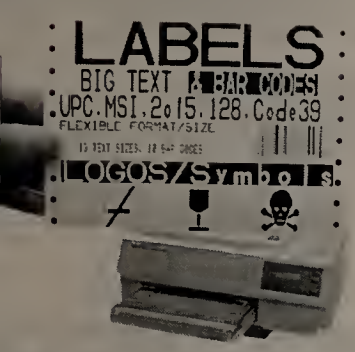

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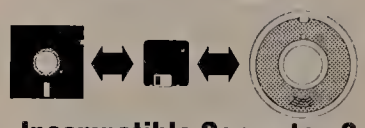

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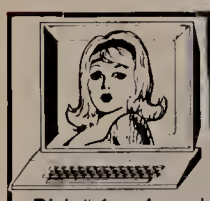

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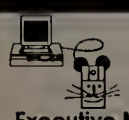

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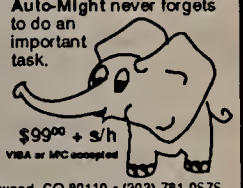

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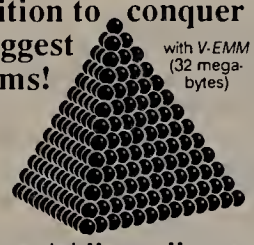

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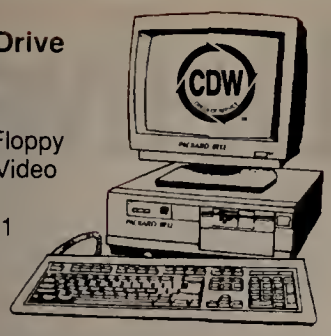

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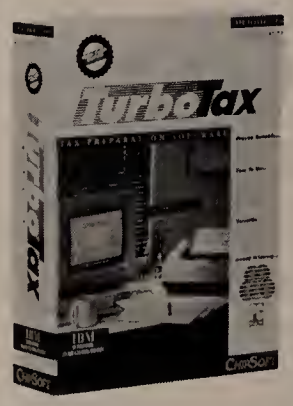

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30F5360 (2Meg)	30-286, 50 MTHR BD.	139.00
6450375 (1Meg)	80-041	119.00
6450379 (2Meg)	80-111, 311	199.00
6451060 (4Meg)	80-A21, 80-A31, 80-111, 80-311	395.00
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6450605 (2-8Meg)	603, 604	479.00
6450608 (2Meg)	70-A21, A-61, B-21, B-61	129.00
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30F2933 (4Meg)	65SX, 55SX, MTHR BD., 34F3077, 3453011, EXP. BD.	395.00
34F3077 (2-16Meg)	EXP. BD. 603, 604, 34F2933	640.00
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DeskPro 386/33	2Meg Module	115144-001	179.00
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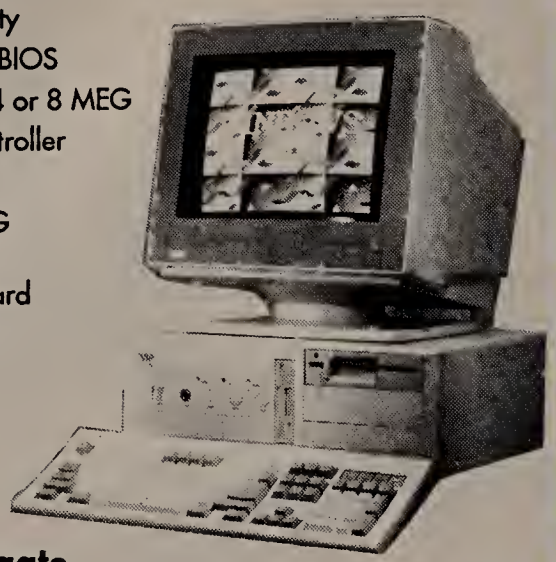

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Memory	1MB standard Expandable to 4MB on board (or to 16MB using 16-bit expansion board); Supports LIM/EMS 4.0	1MB standard Expandable to 4MB on board (or to 16MB using 16-bit axpansion board); Supports LIM/EMS 4.0	1MB standard Expandable to 4MB on board (or to 16MB using 16-bit axpansion board); Supports LIM/EMS 4.0
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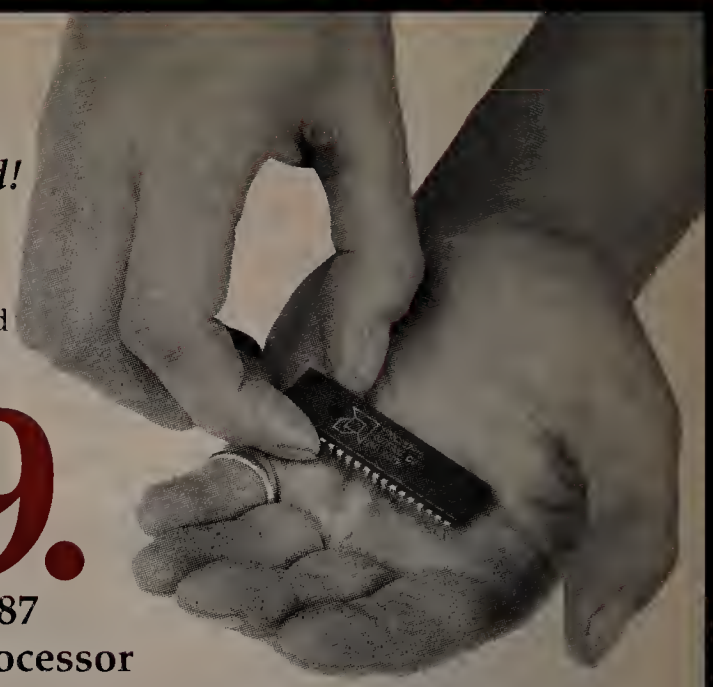

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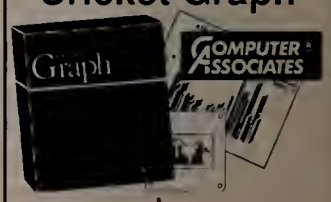

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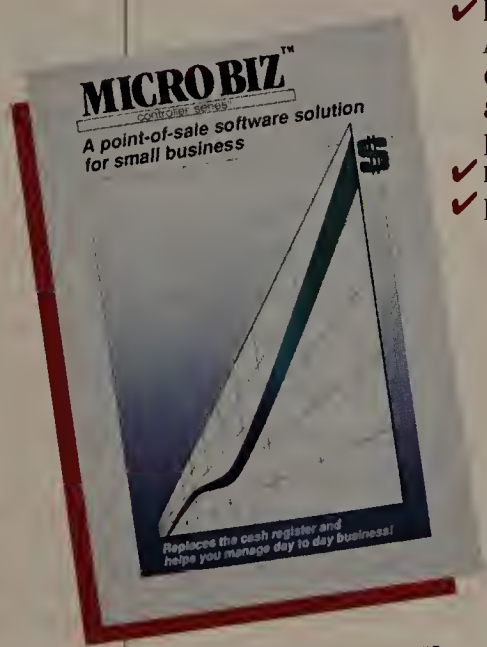

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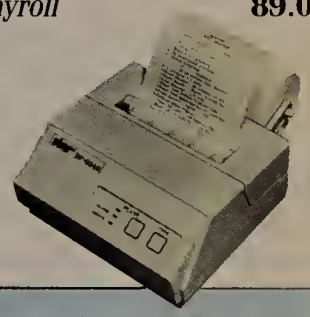

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TAKING IT HOME

The practical guide to home/office computing

Hardware security: Make sure your computer stays at home.

Steve Bass

My wife and I got home late that afternoon, and as soon as we opened the door, we knew something was wrong. I looked around. I *knew* we hadn't left the dresser drawer open. A quick inspection of the house confirmed my worst fears: We'd been burglarized. Again.

If it's happened to you, you know the feeling of outrage at the thought of some jerk rummaging through your home, leaving you to wade through the mess and figure out what isn't there. Some things you don't miss for months.

Once again, the burglar got all the usual stuff—cameras, silver, jewelry—but not the computer. The first burglary was all the warning I needed to make that small corner of my life burglarproof. I can replace my camera at any discount electronics warehouse. But redo my custom computer configuration? Make a new Intel 386 accelerator card, Intel AboveBoard, CAD video card, Plus Hardcard, and Bernoulli Box all work together again? No thanks.

The first burglar jimmied the back door to get in and lugged everything out the same way, so we installed key-only deadbolts on the doors and extra locks on the windows. This time, the burglars came in through the only window I had thought was too high to reach and hadn't secured. They took only what they could toss out the window, and that didn't include my computer (although they made a valiant attempt). But they hadn't brought along cable cutters, and those are what's needed to walk off with my system these days, thanks to my Kablit locks and cables.

A burglar isn't likely to spend the time. The police say most home burglaries take less than 10 minutes. The thief

BACHRUN LOMELE

wants to get in, grab the easy items, and get out. My strategy was to make my $10,000 system a whole lot less attractive than the $300 TV set. Burglars don't understand password protection, so I needed a hardware solution.

I chose Kablit because it's inexpensive (under $50), easy to install, and just as easy *for me* to dismantle. That's important because I'm constantly opening the computer case to install and review new equipment. The Kablit kit includes a 10-foot cable that passes through fasteners whose connections are inaccessible once the cable is locked. The cable can then be threaded through a fastener glued to the desk, but I found a way to wrap it between the legs of the desk so that it can't be removed. The cable loop is closed with a specially designed and reinforced Master padlock.

I also looked at the Care-Free Security System, but its cable looked too thin and its padlock too small. Anchor Pad goes to the other extreme, offering substantially more security via a series pick-resistant locks and a metal cover plate. But once its adhesive base plate is in place, forget about moving it around.

I secured only the expensive items with Kablit: my beefed-up 286 clone, the Sony multiscan monitor, the Hewlett-Packard laser printer, the U.S. Robotics modem. I didn't want to encumber the Northgate keyboard with a cable.

Living in a big city is challenging. The evening of the second burglary, a sheriff's deputy knocked on the door. He was the same detective who had come the time before and belittled my slow XT. Now I have a 286, but he still wasn't impressed.

"Glad you got rid of the XT," he drawled. "You oughta look at a 386, though. I got one, and it sure is fast."

If only he could convince my wife.

Family therapist Steve Bass is president of Pasadena IBM Users Group.

Anchor Pad $139; Anchor Pad Int'l; 800/426-2467, 800/626-2467 California, 805/658-6432 (fax)
Reader service no. 604

Care-Free Security System $29.95; Byte Brothers; 206/271-9567, 206/228-8496 (fax)
Reader service no. 603

Kablit $34.95 to $49.95; Secure-It, Inc.; 800/451-7592
Reader service no. 602

For more information about all products in this article, circle reader service no. 901.

ANTHONY RUSSO

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☐ 286-based systems ☐ UNIX®-based systems
☐ 386-based systems ☐ Laptops
☐ 386SX-based systems ☐ Other: _____
☐ 486-based systems

2. Are you interested in computer products for:
☐ Home ☐ Business ☐ Resale

3. How many PCs does your company plan to purchase in the next twelve months?

Quantity	Timeframe	Quantity	Timeframe
_____	Less than 1 month	_____	6-12 months
_____	1-3 months	_____	More than 12 months
_____	3-6 months		

4. What do you plan to use computer products for?
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5. How many PCs do you have installed now at your company?
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6. Are you interested in leasing? ☐ Yes ☐ No

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